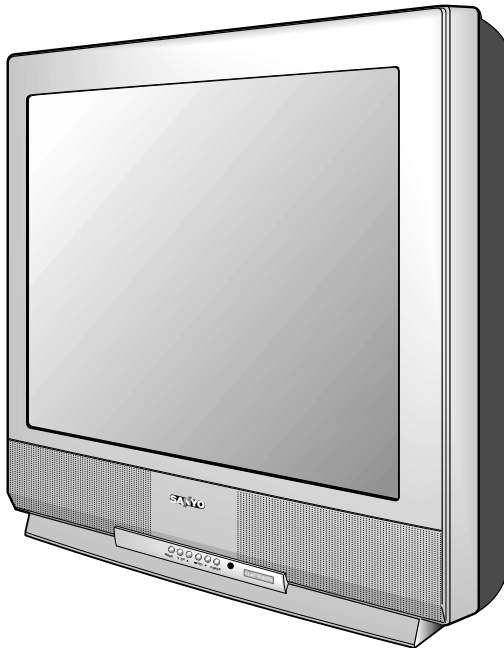


FILE NO.

## SERVICE MANUAL

## Remote Control Color Television

**DS27930** (U.S.A.)  
(CANADA)  
ORIGINAL VERSION



Chassis No. 27930-00

**NOTE:** Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual.

**If the Original Version Service Manual Chassis No. does not match the unit's, additional Service Literature is required. You must refer to "Notices" to the Original Service Manual prior to servicing the unit.**

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### Specifications

Power Rating .....	120V, 60Hz 95W (Avg), 2.5A (Max)
Antenna Input Impedance .....	75Ω UHF/VHF/CATV
Receiving Channel .....	2 - 13 (VHF), 14 - 69 (UHF), 01, 14-94, 95-125 (CATV)
Remote Ready .....	39 Key Remote Control
Sound Output .....	3.0 W/CH
Intermediate Frequency	
Picture IF Carrier .....	45.75MHz
Sound IF Carrier .....	41.25MHz
Color Sub Carrier .....	42.17MHz
Picture Tube .....	A68QCU759X77
Semiconductors	
Integrated Circuits .....	14
Transistors .....	44
Except within Tuner and RC Pre-Amp.	
Cabinet Dimensions	
Width .....	664mm
Height .....	629mm
Depth .....	489mm

# SAFETY INSTRUCTIONS

## SAFETY PRECAUTIONS

**WARNING:** The chassis of this receiver has a floating ground with the potential of one half the AC line voltage in respect to earth ground. Service should not be attempted by anyone not familiar with the precautions necessary when working on this type of equipment.

*The following precautions must be observed:*

1. An isolation transformer must be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Comply with all caution and safety-related notes provided on the side of the cabinet, inside the cabinet, on the chassis, and the picture tube.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are installed properly, such as control knobs, adjustment covers, shields and barriers.

**DO NOT OPERATE THIS TELEVISION RECEIVER WITHOUT THE PROTECTIVE SHIELD IN POSITION AND PROPERLY SECURED.**

4. Before replacing the back cover of the set, thoroughly inspect the inside of the cabinet to see that no stray parts or tools have been left inside.

Before returning any television to the customer, the service technician must perform the following safety checks to be sure that the unit is completely safe to operate without danger of electrical shock.

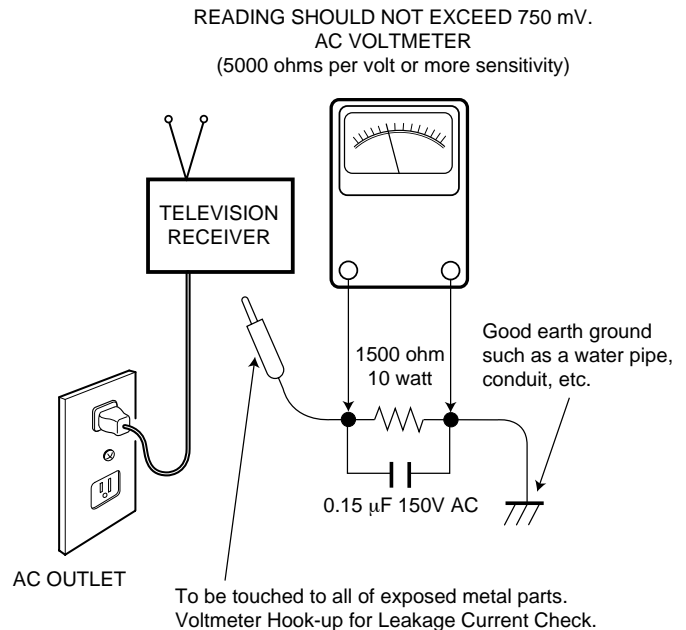
## ANTENNA COLD CHECK

Remove AC plug from the 120 VAC outlet and place a jumper across the two blades. Connect one lead of an ohmmeter to the jumpered AC plug, and touch the other lead to each exposed antenna terminal (UHF and VHF antenna terminals). The resistance must measure between 1M ohm and 5.2M ohm. Any resistance value below or above this range indicates an abnormality which requires corrective action.

## LEAKAGE CURRENT CHECK

Plug the AC line cord directly into a 120 VAC outlet. (Do not use an isolation transformer for this check.) Use an AC voltmeter, that has 5000 ohms per volt or more sensitivity. Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15  $\mu$ F 150 VAC capacitor, between a known good earth ground (water pipe, conduit, etc.) and all exposed metal parts of the cabinet (antennas, handle bracket, metal cabinet, screw heads, metal overlays, control shafts, etc.). Measure the AC voltage across the 1500 ohm resistor. The AC voltage should not exceed 750 mV. A reading exceeding 750 mV indicates that a dangerous potential exists. The fault must be located and corrected. Repeat the above test with the receiver power plug reversed.

**NEVER RETURN A RECEIVER TO THE CUSTOMER WITHOUT TAKING THE NECESSARY CORRECTIVE ACTION.**



## X-RADIATION PRECAUTION

The primary source of X-RADIATION in solid-state receivers is the picture tube. The picture tube is specially constructed to limit X-Ray emission. For continued X-RADIATION protection, the replacement tube must be the same type as the original (including the suffix letter in the part numbers). Excessive high voltage may produce potentially hazardous X-RADIATION. To avoid such hazards, the high voltage must be maintained within specific limits. Refer to the X-RADIATION WARNING NOTE on the CHASSIS SCHEMATIC in this service manual for specific high voltage limits. If the high voltage exceeds specified limits, check the components specified on the chassis schematic diagram and take the necessary corrective action. Carefully follow the instructions for the +B Voltage Check and the High Voltage Check to maintain the high voltage within the specified limits.

## HIGH VOLTAGE HOLD-DOWN TEST

To prevent X-RADIATION from the picture tube due to excessive high voltage, a HOLD-DOWN circuit is provided in the high voltage circuit. Every time the receiver is serviced, the high voltage HOLD-DOWN circuit must be tested for proper operation. Refer to the HIGH VOLTAGE HOLD-DOWN TEST in service adjustments.

## PRODUCT SAFETY NOTICE

When replacing components in a receiver, always keep in mind the necessary product safety precautions. Pay special attention to the replacement of components marked with a star (★) in the parts list and in the schematic diagrams. To ensure safe product operation, it is necessary to replace those components with the exact same PARTS.

# SERVICE ADJUSTMENTS

## GENERAL

This set has an on-screen Service Menu system included in the CPU that allows remote operation for most of the service adjustments. To enter the Service Menu, first disconnect the AC power cord. Then while pressing the MENU key on the **front control panel**, reconnect the AC power cord. The adjustments can now be made with the remote control or front control panel keys.

## ON-SCREEN SERVICE MENU SYSTEM

### 1. Enter the Service Menu:

- While pressing the MENU key on the **front control panel**, reconnect the AC power cord. The Service Menu Display will now appear. (See Figure 1.)

### 2. Service Adjustments:

- Press the ▲ or ▼ key to select the desired service menu item you want to adjust. (See page 5 for On-screen Service Menu.)
- Use the + or – key or number keys to adjust the data.
 

The + or – keys will increase or decrease the data sequentially.

The number keys (0 ~ 7) toggle only their respective bits between 1 and 0 and are used to change the Sub-Address. For example to change bit 5 press the number 5 key. (See below)

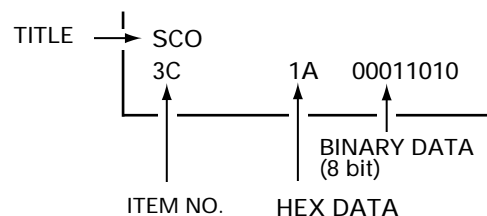
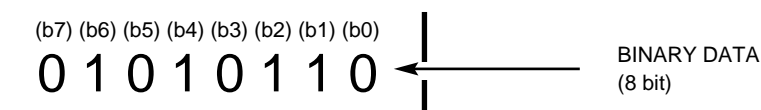


Figure 1. Service Menu Display



### 3. Exit from the Service Menu:

- Press the MENU key to turn off the Service Menu display.

## IC802 (EEPROM) REPLACEMENT

When IC802 (EEPROM) is replaced, IC801 (CPU) will automatically write the initial reference data into IC802 for basic TV operation. However, the bus data should be checked and some bus data should be set up before attempting the service adjustments. (See pages 5 – 7, Table 1, for detailed bus data information.)

## INITIAL BUS DATA SETUP

Note: When IC802 (EEPROM) is replaced, change the following initial reference data for proper TV operation before attempting service adjustments.

- Disconnect the AC power cord (AC 120V line).
- While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
- Select NO. 3C SCO (Sub Color) with ▲ or ▼ key. Adjust the data with + or – key for 1A.
- Select NO. 3D STI (Sub Tint) with ▲ or ▼ key. Adjust the data with + or – key for 0D.
- Select NO. 3F SSH (Sub Sharpness) with ▲ or ▼ key. Adjust the data with + or – key for 05.
- Select NO. 40 AFC6HFR (AFC / H Frequency) with ▲ or ▼ key. Adjust the data with number keys for BF.
- Select NO. 42 VS (V Size) with ▲ or ▼ key. Adjust the data with + or – key for 2B.
- Select NO. 43 VSP7VPO (V Sync Sep / V Position) with ▲ or ▼ key. Adjust the data with number keys for 20.
- Select NO. 44 CDM5UVL (V Count Dn Mode / V Lin Top) with ▲ or ▼ key. Adjust the data with number keys for 0F.
- Select NO. 45 VC5LVL (V Compresion / V Lin Bottom) with ▲ or ▼ key. Adjust the data with number keys for 4D.
- Select NO. 46 VSC (V S Correction) with ▲ or ▼ key. Adjust the data with + or – key for 10.
- Select NO. 4A RD (Red Drive) with ▲ or ▼ key. Adjust the data with + or – key for 3A.
- Select NO. 4C BD (Blue Drive) with ▲ or ▼ key. Adjust the data with + or – key for 3A.
- Select NO. 4D SBI (Sub Bias) with ▲ or ▼ key. Adjust the data with + or – key for 23.
- Select NO. 54 FLS (Y/C Filter Mode) with ▲ or ▼ key. Adjust the data with + or – key for 83.
- Select NO. 56 FBP6YAP4WP (FBP Blanking / Y APF / W Peak) with ▲ or ▼ key. Adjust the data with number keys for 41.
- Select NO. 57 YGM6DCR4BSS2BSG (Y Gamma / DC Reset / Black Steak Start / Black Streak Gain) with ▲ or ▼ key. Adjust the data with number keys for 61.

## SERVICE ADJUSTMENTS (Cont.)

### INITIAL BUS DATA SETUP (Cont.)

18. Select NO. 58 AFC7CBP5 (Auto Flesh / C Band Pass Filter) with ▲ or ▼ key. Adjust the data with number keys for C0.
19. Select NO. 59 DIG6ABL5MSD4BAT (OSD D/A / ABL Defeat / Mid Stop / ABL Threshold) with ▲ or ▼ key. Adjust the data with numbers key for 64.
20. Select NO. 5A RYA (R-Y/B-Y Angle) with ▲ or ▼ key. Adjust the data with + or – key for 00.
21. Select NO. 5F VL5BPF (Video Level / S BPF Sw) with ▲ or ▼ key. Adjust the data with number keys for 80.
22. Select NO. 60 EWD (E/W DC) with ▲ or ▼ key. Adjust the data with + or – key for 26.
23. Select NO. 61 EWA (E/W Amp) with ▲ or ▼ key. Adjust the data with + or – key for 0F.
24. Select NO. 62 EWT (E/W Tilt) with ▲ or ▼ key. Adjust the data with + or – key for 23.
25. Select NO. 63 EWB4EWP (E/W Corner Btm / E/W Corner Top) with ▲ or ▼ key. Adjust the data with number keys for 96.
26. Select NO. 65 BOW4ANG (Bow Correct / Angle Correct) with ▲ or ▼ key. Adjust the data with number keys for 96.
27. Select NO. 66 PRE6OVR4CTT (Pre Shoot Adj / Over Shoot Adj / Chroma Trap Test) with ▲ or ▼ key. Adjust the data with number keys for 20.
28. Select NO. 67 HBL4HBR (H Blanking L / H Blanking R) with ▲ or ▼ key. Adjust the data with number keys for 2A.
29. Select NO. 68 SSP5VM (Sync Sep Sens / VM Gain) with ▲ or ▼ key. Adjust the data with number keys for 8C.
30. Select NO. 6A YTH2YGA (Y TH / Y Gain) with ▲ or ▼ key. Adjust the data with number keys for 0D.
31. Select NO. 6B RWD6ROF4BWD2BOF (R Width / R Offset / B Width / B Offset) with ▲ or ▼ key. Adjust the data with number keys for 10.
32. Select NO. 83 OPT (Asp Ratio / Comb F / Clock / Scan Veloc) with ▲ or ▼ key. Adjust the data with number keys for 3C.
33. Select NO. 84 OP2 (V Guide / Tone / AV / PIP / F/V / I-Ch / C En / C En Select) with ▲ or ▼ key. Adjust the data with number keys for 2E.
34. Select NO. 8D HR (H Display Position) with ▲ or ▼ key. Adjust the data with + or – key for 18.
35. Select NO. 8E SBO (Sub Bright Offset) with ▲ or ▼ key. Adjust the data with + or – key for 02.
36. Select NO. 92 DTN (YUV Sub Tint) with ▲ or ▼ key. Adjust the data with + or – key for FC.
37. Select NO. 96 DCB (YUV Cb Offset) with ▲ or ▼ key. Adjust the data with + or – key for 00.
38. Select NO. 97 DCR (YUV Cr Offset) with ▲ or ▼ key. Adjust the data with + or – key for 00.
39. Select NO. 9A ECN (16:9 Sub Contrast) with ▲ or ▼ key. Adjust the data with + or – key for E9.
40. Select NO. 9B EBR (16:9 Sub Bright) with ▲ or ▼ key. Adjust the data with + or – key for FB.
41. Select NO. A0 EEA(16:9 Sub E/W Amp) with ▲ or ▼ key. Adjust the data with + or – key for F9.
42. Select NO. A1 EET (16:9 Sub E/W Tilt) with ▲ or ▼ key. Adjust the data with + or – key for 00.
43. Select NO. A2 EEP (16:9 Sub E/W Corner Top) with ▲ or ▼ key. Adjust the data with + or – key for FF.
44. Select NO. A3 EEB (16:9 Sub E/W Corner Bottom) with ▲ or ▼ key. Adjust the data with + or – key for FD.
45. Select NO. A4 EUV (16:9 Sub V Lin Top) with ▲ or ▼ key. Adjust the data with + or – key for FE.
46. Select NO. A5 ELV (16:9 Sub V Lin Bottom) with ▲ or ▼ key. Adjust the data with + or – key for 04.
47. Select NO. AB VFL (Filter System AVt) with ▲ or ▼ key. Adjust the data with + or – key for 04.
48. Press the MENU key to turn off the Service Menu display.

**Table 1. ON-SCREEN SERVICE MENU**

When IC802 (EEPROM) is replaced, check the bus data to confirm they are the same as below. The shaded menu should be checked and be set up or readjusted according to the procedures described in the following pages. Initial Setup Data marked with an \* should be changed from Initial Reference Data. (See pages 3 and 4 for Initial Bus Data Setup.)

No.	TITLE	INITIAL REFERENCE DATA HEX	INITIAL SETUP DATA HEX	INITIAL SETUP DATA BINARY	FUNCTION
3C	SCO	0F	1A*	00011010	Sub Color
3D	STI	15	0D*	00001101	Sub Tint
3E	SB	20	20	00100000	Sub Bright
3F	SSH	08	05*	00000101	Sub Sharpness
40	AFC6HFR	A5	BF*	10111111	AFC(6) Horizontal Frequency
41	VTR7HP	0C	0C	00001100	Vertical Trans(7) Horizontal Phase
42	VS	40	2B*	00101011	Vertical Size
43	VSP7VPO	2A	20*	00100000	Vertical Sync Separator(7) Vertical Position
44	CDM5UVL	06	0F*	00001111	Vertical Count Down Mode(5) Vertical Linearity Top
45	VC5LVL	9E	4D*	01001101	Vertical Compression(5) Vertical Linearity Bottom
46	VSC	14	10*	00010000	Vertical S Correction
47	RB	00	00	00000000	Red Bias
48	GB	00	00	00000000	Green Bias
49	BB	00	00	00000000	Blue Bias
4A	RD	38	3A*	00111010	Red Drive
4B	HT5HTD4GD	37	37	00110111	Half Tone(6~5) Half Tone Defeat(4) Green Drive
4C	BD	38	3A*	00111010	Blue Drive
4D	SBI	30	23*	00100011	Sub Bias
4E	↓	↓	↓	↓	Not Used
4F	↓	↓	↓	↓	Not Used
50	OSD	07	07	00000111	On Screen Display Contrast
51	CRG6	80	80	10000000	Coring
52	↓	↓	↓	↓	Not Used
53	↓	↓	↓	↓	Not Used
54	FLS	84	83*	10000011	Y/C Filter Mode
55	GRY7CRS5GYA3CKO	03	03	00000011	Gray(7) Cross B/W(6~5) G-Y Angle(4) Color Killer
56	FBP6YAP4WHP	42	41*	01000001	FBP Blanking(6) Y APF(4) White Peak
57	YGM8DCR4BSS2BSG	A5	61*	01100001	Y Gamma(7~6) DC Reset(5~4) B Strk Start(3~2) B Strk Gain
58	AFC7CBP5	40	C0*	11000000	Auto Flesh(7) Color Band Pass Filter(5)
59	DIG6ABL5MSD4BAT	44	64*	01100100	OSD D/A(6) ABL Defeat(5) Mid Stop(4) ABL Threshold
5A	RYA	0B	00*	00000010	R-Y/B-Y Angle
5B	CBO4CRO	88	88	10001000	Cb DC Offset(7~4) Cr DC Offset
5C	↓	↓	↓	↓	Not Used
5D	STS7RAD	20	20	00100000	S Trap Switch(7) RF AGC Delay
5E	FMM7VIF4IAS	00	00	00000000	FM Mute(7) VIF System Switch(4) IF AGC
5F	VL5BPF	A0	80*	10000000	Video Level(7~5) S BPF Switch
60	EWD	28	26*	00100110	E/W DC
61	EWA	17	0F*	00001111	E/W Amp
62	EWT	1D	23*	00100011	E/W Tilt
63	EWB4EWP	88	96*	10010110	E/W Corner Bottom(7~4) E/W corner Top
64	EW7HLV6HSC	03	03	00000011	E/W Correction Sw(7) H Lock V Det(6) H Size Comp
65	BOW4ANG	78	96*	10010110	Bow Correction(7~4) Angle Correction
66	PRE6OVR4CTT	C0	20*	00100000	Preshoot Adj(7~6) Overshoot Adj(5~4) Chroma Trap Test
67	HBL4HBR	38	2A*	00101010	H Blanking Left(7~4) H Blanking Right
68	SSP5VM	90	8C*	10001100	Sync Sep Sens(7~5) VM Gain
69	VL4	00	00	00000000	V Size 0.75(7) V Blanking select
6A	YTH2YGA	00	0D*	00001101	Y TH(3~2) Y Gain
6B	RWD6ROF4BWD2BOF	00	10*	00010000	R Width(7~6) R Offset(5~4) B Width(3~2) B Offset
80	ATT	07	07	00000111	Attenuation (MTS Input Level)

# SERVICE ADJUSTMENTS (Cont.)

Table 1. ON-SCREEN SERVICE MENU (Continued)

No.	TITLE	INITIAL REFERENCE DATA HEX	INITIAL SETUP DATA HEX	INITIAL SETUP DATA BINARY	FUNCTION
81	WDB	20	20	00100000	Wide Band
82	SPC	20	20	00100000	Spectral
83	OPT	70	3C*	00111100	Aspect Ratio(5) Comb Filter(4) Clock(3) Scan Velocity(2)
84	OP2	52	2E*	00101110	V Guide(7) Tone(6) AV(5) PIP(4) F/V(3) I-Ch(2) C En(1) C En Sel
85	PUV	18	18	00011000	PIP Up Vertical Position
86	PDV	93	93	10010011	PIP Down Vertical Position
87	PLH	0A	0A	00001010	PIP Left Horizontal Position
88	PRH	65	65	01100101	PIP Right Horizontal Position
89	PCN	2A	2A	00101010	PIP Contrast
8A	PBS	0F	0F	00001111	PIP BG Start
8B	PCO	28	28	00101000	PIP Color
8C	PTI	28	28	00101000	PIP Tint
8D	HR	16	18*	00011000	H Display Position
8E	SBO	05	02*	00000010	Sub Bright Offset
8F	DCN	00	00	00000000	YUV Sub Contrast
90	DBR	00	00	00000000	YUV Sub Bright
91	DCL	00	00	00000000	YUV Sub Color
92	DTN	00	FC*	11111100	YUV Sub Tint
93	DSP	00	00	00000000	YUV Sub Sharpness
94	DCG	00	00	00000000	YUV Sub Coring
95	DVM	00	00	00000000	YUV Sub VM
96	DCB	02	00*	00000000	YUV Cb Offset
97	DCR	02	00*	00000000	YUV Cr Offset
98	DHC	00	00	00000000	YUV Sub H Phase
99	DHS	00	00	00000000	YUV Sub E/W DC
9A	ECN	F4	E9*	11101001	16:9 Sub Contrast
9B	EBR	00	FB*	11111011	16:9 Sub Bright
9C	ECL	00	00	00000000	16:9 Sub Color
9D	ETN	00	00	00000000	16:9 Sub Tint
9E	EVS	F9	F9	11111001	16:9 Sub V Size
9F	EVP	00	00	00000000	16:9 Sub V Position
A0	EEA	F5	F9*	11111001	16:9 Sub E/W Amp
A1	EET	FB	00*	00000000	16:9 Sub E/W Tilt
A2	EEP	00	FF*	11111111	16:9 Sub E/W Corner Top
A3	EEB	FC	FD*	11111101	16:9 Sub E/W Corner Bottom
A4	EUV	FC	FE*	11111110	16:9 Sub V Linearity Top
A5	ELV	00	04*	00000100	16:9 Sub V Linearity Bottom
A6	EWV	02	02	00000010	16:9 V Blanking Select
A7	SSN	02	02	00000100	Sync Separator Sense
A8	CDR	00	00	00000000	TV Count Down Mode
A9	AFR	00	00	00000000	AFC Loop Gain
AA	B16	04	04	00000100	16:9 ABL VTH Sw
AB	VFL	03	04*	00000100	Filter Sys (AV)
AC	VCB	01	01	00000001	C Bypass (AV)
AD	BWD	02	02	00000010	EWD AT AV Blue Back
AF	DRV	R40	R40	01000000	Red Drive Adjustment (See Note 1.)
		R40	R40	01000000	Blue Drive Adjustment (See Note 1.)
	-	-	-	-	Red Bias Adjustment (See Note 2.)
	-	-	-	-	Green Bias Adjustment (See Note 2.)
	-	-	-	-	Blue Bias Adjustment (See Note 2.)

## DRIVE AND BIAS ADJUSTMENTS

### Note 1.

**Red/Blue Drive Adjustments in Service Menu NO. AF DRV:** Adjust Red and Blue Drive Levels alternately with 1, 3, 7, and 9 keys on the remote control. (See Figure 2.) The Drive Level adjustment data will be written in the Service Menu No. 4A RD and 4C BD automatically.

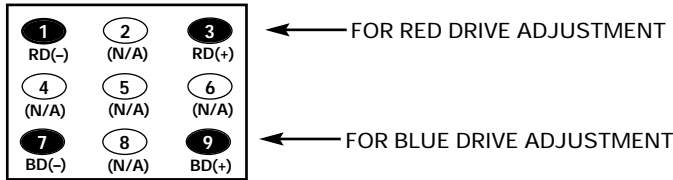


Figure 2.

### Note 2.

**Red/Green/Blue Bias Adjustments in Service Menu NO. B0 (No Vertical Sweep):** Adjust each Bias Level with 1, 3, 4, 6, 7, or 9 key on the remote control. (See Figure 3.) The Bias Level adjustment data will be written in the Service Menu No. 47 RB, No. 48 GB, and No. 49 BB automatically.

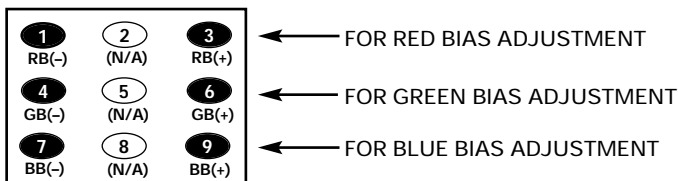


Figure 3.

## PROGRAM CODES

The microprocessor used in this model is a multi-purpose type and is used in several different models. To ensure proper operation and the correct features for your particular model, the program codes must be correct.

**Note 1. Option Data 1 (NO. 83 OPT) should be hexadecimal 3C (00111100 binary).** See page 4 INITIAL DATA SETUP, step 32, for set up procedure. If this program code is wrong the TV will not operate properly.

BIT	FUNCTION	DATA	
		0	1
0 - 1	NOT USED	—	—
2	SCAN VELOCITY	NONE	YES
3	CLOCK	NONE	YES
4	COMB FILTER	NONE	YES
5	WIDE MODE	NONE	YES
6	SURROUND	NONE	YES
7	NOT USED	—	—

**Note 2. Option Data 2 (NO. 84 OP2) should be hexadecimal 2E (00101110 binary).** See page 4 INITIAL DATA SETUP, step 33, for set up procedure. If this program code is wrong the TV will not operate properly.

BIT	FUNCTION	DATA	
		0	1
0	SHIPPING CONDITION OF COLOR ENHANCER	NORMAL	COOL
1	COLOR ENHANCER	NONE	YES
2	INITIAL CH & XDS	NONE	YES
3	FIXED/VARIABLE	FIXED	FIX/VAR
4	PIP	NONE	YES
5	AV INPUTS	AV1/2	AV1/2/3
6	BASS & TREBLE / TONE	BASS & TR	TONE
7	V-GUIDE	NONE	YES

# SERVICE ADJUSTMENTS (Continued)

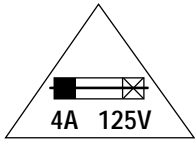
## ANTENNA CONNECTIONS

This receiver is designed for UHF/VHF reception. A 75 ohm terminal is provided for UHF and VHF receptions. When connecting a CATV antenna system, connect the 75 ohm coaxial cable directly to the 75 ohm terminal. For 300 ohm VHF antenna, use an adapter (not included with the TV set).

## CIRCUIT PROTECTION

Fuse F601 (4A) is included in the AC line. This fuse must be replaced with the proper fuse (see Parts List).

### CAUTION



**FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE 4A, 125V FUSE.**

**ATTENTION : POUR MAINTENIR LA PROTECTION CONTRE LES RISQUES D' INCENDIE UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE 4A, 125V.**

## +B VOLTAGE CHECK

Connect Voltmeter + lead to TJ1 130V and – lead to ground (TE7). Connect receiver to AC 120V line. Tune receiver to an active channel. Reset the picture controls to the FACTORY PRESET levels (press remote control RESET key twice). Voltage must measure between +128.0V and +132.0V. If the voltage is out of this range, the power circuit must be checked. No +B adjustment is provided on this chassis.

## HORIZONTAL WIDTH ADJUSTMENT

1. Tune receiver to an active channel.
2. Check the picture for proper width. If width is not correct, perform steps 3 ~ 6.
3. Turn off the receiver and disconnect the AC power cord (120V AC line).
4. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
5. Select NO. 60 EWD (Horizontal Width) with ▲ or ▼ key.
6. Adjust the data with + or – key for proper width. To turn off the Service Menu display, press the MENU key.

## HORIZONTAL CENTERING ADJUSTMENT

1. Tune receiver to an active channel.
2. Check that picture is in the horizontal center of TV screen. If picture is not centered horizontally, perform steps 3 ~ 6.
3. Turn off the receiver and disconnect the AC power cord.
4. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
5. Select NO. 41 VTR7HP (Horiz. Phase) with ▲ or ▼ key.
6. Adjust the data with + or – key for horizontal center. To turn off the Service Menu display, press the MENU key.

## VERTICAL SIZE ADJUSTMENT

1. Tune receiver to an active channel.
2. Check the vertical size of the picture. If the vertical size is too large or small, perform steps 3 ~ 6.
3. Turn off the receiver and disconnect the AC power cord.
4. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
5. Select NO. 42 VS (Vertical Size) with ▲ or ▼ key.
6. Adjust the data with + or – key for full scan. To turn off the Service Menu display, press the MENU key.

## VERTICAL CENTERING ADJUSTMENT

1. Tune receiver to an active channel.
2. Check that picture is in the center of TV screen. If picture center is too low, add resistor R513 (1K ohm 1W). If picture center is too high, change resistor R512 from 1K ohm 1/2W to a 470 ohm 1W.

## VCO ADJUSTMENT

Note: VCO must be adjusted after IC101 (Signal Processor), IC802 (EEPROM) or T151 (VCO Coil) is replaced.

1. Tune receiver to an active channel.
2. Set the picture controls to the Sports level.
3. Connect digital voltmeter + lead to pin 58 (TP 10) of IC101 and – lead to ground (TE 7).
4. Confirm a reading of  $3.6 \pm 0.2$  VDC.
5. If voltage is out of specifications adjust T151 for  $3.6 \pm 0.2$  VDC.

## RF AGC ADJUSTMENT

1. Tune receiver to strongest VHF station in your area.
2. Set contrast and brightness controls for maximum.
3. Turn off the receiver and disconnect the AC power cord (120V AC line).
4. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
5. Select NO. 5D STS7RAD (RF AGC Delay) with ▲ or ▼ key.
6. Adjust the data with + or – key in the direction which causes snow to appear; then in the opposite direction until the snow just disappears.
7. To turn off the Service Menu display, press the MENU key.

## VIDEO LEVEL

1. Connect color-bar generator to antenna terminals.
2. Switch the generator to a white field (100 IRE).
3. Set the picture controls to the Sports levels.
4. Connect oscilloscope + lead to terminal TP16 (Q202 Emitter) and – lead to ground.
5. Turn off the receiver and disconnect the AC power cord (AC 120V line).
6. While pressing the Menu key, reconnect the AC power cord. The Service Menu will now appear.
7. Select NO. 5F VL5BPF (Video Level) with the ▲ or ▼ key.
8. Adjust the data with the 5 ~ 7 numeric keys for an oscilloscope reading of  $1.0 \pm 0.1$  VP-P at TP16.
9. Press the MENU key to turn off the Service Menu display and disconnect oscilloscope from chassis.

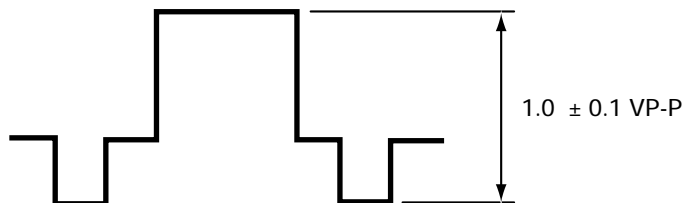
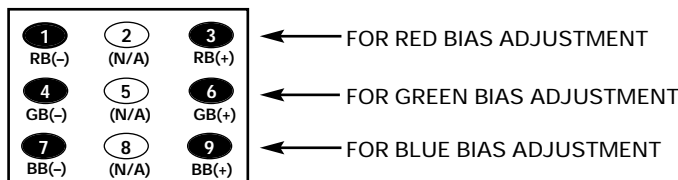


Figure 6.



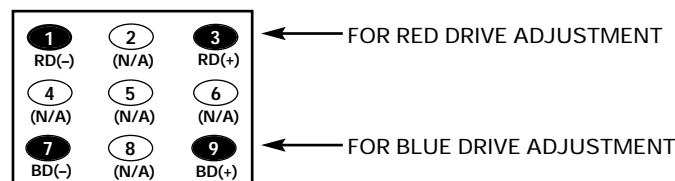
## GRAYSCALE ADJUSTMENT

1. Connect a color-bar generator to the antenna terminals.
2. Switch the generator to the white pattern.
3. Set the picture controls to the Sports level or Reset (use MENU key and ▲ or ▼ key or RESET key).
4. Turn off the receiver and disconnect the AC power cord (120V AC line).
5. While pressing the MENU key, reconnect the AC power-cord. The Service Menu display will now appear.
6. Select NO. 4A RD (Red Drive) and NO. 4C BD (Blue Drive) with ▲ or ▼ key and set each data to 3A with + or – key.
7. Select NO. 47 RB (Red Bias), NO. 48 GB (Green Bias) and NO. 49 BB (Blue Bias) with ▲ or ▼ key and set each data to 00 with + or – key.
8. Set NO. 3C SCO (Sub Color) data to 1A, NO. 3D STI (Sub Tint) data to 0D, NO. 3E SB (Sub Bright) data to 20, NO. 3F SSH (Sub Sharpness) data to 05, and NO. 4B GD (Green Drive) data to 37 with ▲ or ▼, and + or – keys.
9. Turn Screen Control (T402) to minimum (fully counter-clockwise).
10. Select the Service Menu NO. B0 (Bias Adjustments – No Vertical Sweep) with ▲ or ▼ key.
11. Advance Screen Control (T402) clockwise to obtain just visible one color line. If line does not appear, place this control to maximum (fully clockwise).
12. Raise each Bias Level with 3, 6, and 9 keys to obtain just visible white line. (See Figure 4.)



**Figure 4. Remote Control Number keys' functions in Service Menu NO. B0 (No Vertical Sweep)**

13. Select the Service Menu NO. AF DRV (Drive Adjustments) with ▲ or ▼ key.
14. Adjust Red and Blue Drive Levels alternately with 1, 3, 7, or 9 key to produce normal black and white picture in highlight areas. (See Figure 5.)



**Figure 5. Remote Control Number keys' functions in Service Menu NO. AF DRV**

15. Check for proper grayscale at all brightness levels.

Note: If Grayscale Adjustment is made after picture tube replacement, check Brightness Level Adjustment.

## FOCUS ADJUSTMENT

Adjust focus control (T402) for well defined scanning lines.

## BRIGHTNESS LEVEL ADJUSTMENT

Note: Grayscale Adjustment and High Voltage Check must be completed before attempting Brightness Level Adjustment.

1. Connect a color-bar generator to the antenna terminals.
2. Switch the generator to the crosshatch pattern.
3. Reset the picture controls to the Sports level.
4. Connect voltmeter (high impedance) + lead to terminal TP51 and – lead to terminal TP50 on main board. Set voltmeter for 1.5V ~ 3V range.
5. Turn off the receiver and disconnect the AC power cord.
6. While pressing the MENU key, reconnect the AC power-cord. The Service Menu display will now appear.
7. Select NO. 3E SB (Sub Brightness) with ▲ or ▼ key.
8. Adjust the data with + or – key for 680 mVDC.
9. Press the MENU key to turn off the Service Menu display.
10. Check brightness level on every active channel, readjust (repeat steps 5 ~ 9), if necessary.

Note: Do not set to excessive brightness level, otherwise the contrast level will be suppressed.

## HIGH VOLTAGE HOLD-DOWN TEST

Every time the receiver is serviced, the HIGH VOLTAGE HOLD-DOWN circuit must be tested for proper operation by following these steps:

1. Connect receiver to 120V AC line. Tune receiver to active channel. Reset the picture controls to the Sports level.
2. Check that the voltage measured between TP7 and TE7 (ground side) is within 16.5 VDC to 21 VDC. If the voltage is out of this range, the Hold-Down Circuit must be checked.
3. Connect a DC Voltage supply to TP7 and TE7 through a 100 ohm 1/4W resistor. Adjust the DC voltage to 23 VDC. The receiver should shutdown, losing raster and sound. Then the receiver should turn off automatically. This reaction indicates that the Hold-Down circuit is functioning properly. If the receiver does not shutdown, a malfunction is indicated and its cause **must** be found and corrected.
4. To obtain picture again, remove the DC Supply and wait a few minutes. Now turn on the receiver.

## HIGH VOLTAGE CHECK

Note: +B (+130V) Voltage Check and Grayscale Adjustment must be completed before attempting High Voltage Check.

1. Connect high voltage voltmeter – lead to ground, and connect + lead to anode of picture tube.
2. Tune receiver to an active channel and confirm TV is operating properly.
3. Eliminate the beam current by adjusting the contrast and brightness controls to minimum.
4. Confirm high voltage is within 28.3 KV and 32.6 KV. If reading is not within range, check horizontal circuit.

No high-voltage adjustment is provided on this chassis. key.

# SERVICE ADJUSTMENTS (Continued)

## MULTI-SOUND SECTION ADJUSTMENTS

Note: Multi-Sound Section must be adjusted after A101 (U/V Tuner), IC3401 (MTS Decoder), or IC802 (EEPROM) is replaced.

### INPUT LEVEL ADJUSTMENT

1. Connect a signal to the antenna terminals with audio of 1 KHz 100% modulation.
2. Turn off the receiver and disconnect the AC power cord (AC 120V line).
3. Connect voltmeter (RMS) to TP317 and ground.
4. While pressing the Menu key, reconnect the AC power cord. The Service Menu will now appear.
5. Select NO. 80 ATT (MTS Input Level) with the ▲ or ▼ key.
6. Adjust the + or – key for a voltmeter reading of  $400 \pm 20$  mVrms at TP317.

### SEPARATION ADJUSTMENT

7. Turn off the receiver and disconnect the AC power cord (AC 120V line).
8. Connect oscilloscope CH1 to TP317 and CH2 to TP318 and ground.
9. Connect an MTS TV/Stereo generator to antenna terminal.
10. While pressing the Menu key, reconnect the AC power cord. The Service Menu will now appear.
11. Select pilot, 300Hz audio frequency and Left modulating signal.
12. Select NO. 81 WDB (Wide Band) with the ▲ or ▼ key.
13. Adjust the + or – key for minimum low frequencies at TP317. (See Figure 6.)
14. Select 4 KHz audio frequency and Right modulating signal.
15. Select NO. 82 SPC (Spectral) with the ▲ or ▼ key.
16. Adjust the + or – key for minimum high frequencies at TP318. (See Figure 6.)

Repeat adjustments (steps 11–16) until no further decreases in amplitude can be obtained. Press the MENU key to turn off the Service Menu display.

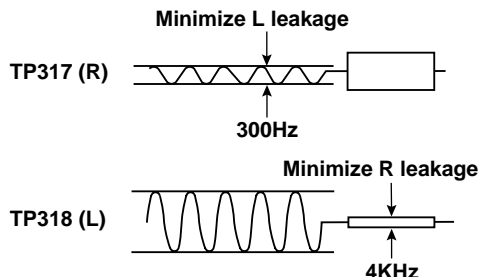


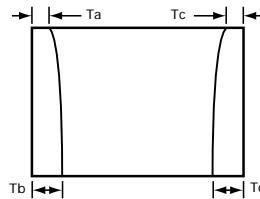
Figure 6. Separation Adjustments

## PURITY AND CONVERGENCE ADJUSTMENTS

Purity and Convergence have been aligned at the factory. No re-alignment is necessary.

### PINCUSHION CORRECTION ADJUSTMENT

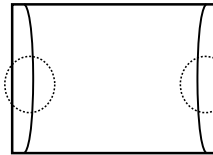
1. Connect a color-bar generator to the antenna terminals and select a crosshatch pattern.
2. Set the picture controls to the Sports level.
3. Turn off the receiver and disconnect the AC power cord (AC 120V line).
4. While pressing the Menu key, reconnect the AC power cord. The Service Menu will now appear.
5. Select No. 62 EWT with ▲ or ▼ key and adjust with + or – key for equal tilt at top and bottom.



Adjust No. 62 EWT for equal tilt:  
 $Ta=Tb, Tc=Td$ .

Figure 7.

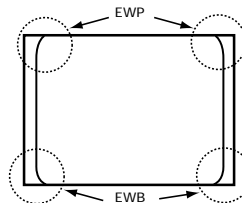
6. Select No. 61 EWA with ▲ or ▼ key and adjust with + or – key for straight vertical lines at the center.



Adjust No. 61 EWA for the center part of the vertical line to be straight.

Figure 8.

7. Select No. 63 EWB4EWP with ▲ or ▼ key and adjust with + or – key for straight vertical lines at the top.
8. Select No. 63 EWB4EWP with ▲ or ▼ key and adjust with 4 ~ 7 keys for straight vertical lines at the bottom.



Adjust No. 63 EWP for straight vertical lines at the top. (+ or – keys)  
Adjust No. 63 EWB for straight vertical lines at the bottom. (4 ~ 7 keys)

Figure 9.

9. Repeat steps 5 through 8 for best pincushion adjustment.
10. Press the MENU key to turn off the Service Menu display.

# SERVICE HINTS

## POWER FAILURE DETECTOR

This unit is equipped with a Power Failure Detector function included in the CPU which checks for an abnormal condition in the chassis power supplies, including the power supply derived from the Horizontal Output Transformer.

If, while the power is on, a failure is caused by any of the following that results in a low voltage supply, the CPU will turn the unit off in 1.5 seconds to prevent unnecessary damage:

- Failure within the power supply circuits.
- A short circuit in the load side from the supply.
- Stoppage of the Horizontal Output Oscillator caused by the X-Radiation protection Hold-Down Circuit.

If, while the power is off, the power is switched on and any of these failures remains uncorrected, the CPU will shut off the power within three seconds.

*Check the following if the unit is turned off by the power failure detector.*

1. Disconnect the AC power cord (120V AC line) for at least 10 seconds.
2. Connect a DC Voltmeter to the following TEST POINTS.

<b>D508</b>	<b>26V</b>
<b>TJ6</b>	<b>5V</b>
<b>D429 Cathode</b>	<b>8V</b>
<b>D643</b>	<b>12V</b>

3. Press the Power key and check for the proper voltage supplies.
4. If any of these voltages is low, the power failure detector should turn the unit off within three seconds.
5. Check all circuits listed above.

Note: This unit is equipped with a Power Surge Protection feature included in the CPU. If power failure occurs three times within 15 minutes, the CPU will automatically stop functioning to help prevent secondary damage. (TV will not turn on by pressing the power key.) To reset the operating programs within the CPU, disconnect the AC power cord for at least 10 seconds.

# MECHANICAL DISASSEMBLIES

## CABINET BACK REMOVAL

1. Refer to Figure 1, remove 10 screws.
2. Pull off cabinet back and remove.

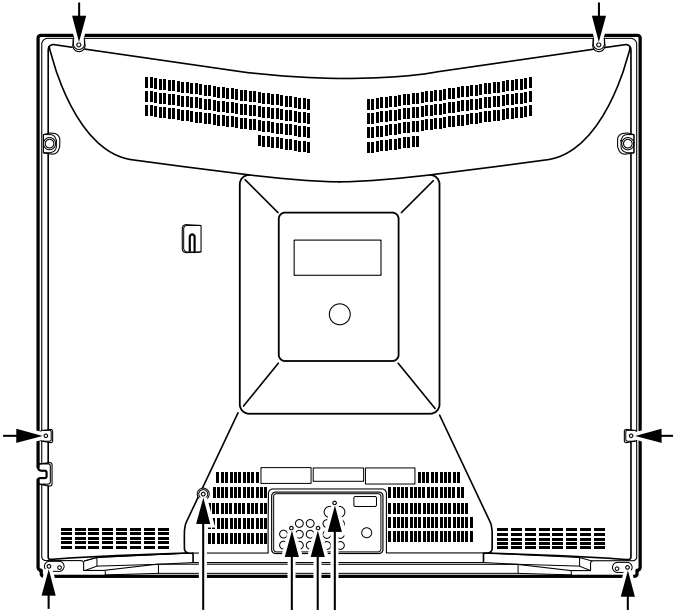


Figure 1. Cabinet Back Removal

## CHASSIS REMOVAL

1. Remove cabinet back.
2. Discharge the picture tube anode (2nd anode lead) to the dag coating (picture tube grounding lead).
3. Disconnect degaussing coil socket (KD), picture tube socket, deflection yoke connector (KX), speakers connector (KSP), picture tube ground lead, and 2nd anode lead.
4. Remove chassis completely by sliding it straight back.

## PICTURE TUBE REMOVAL

**CAUTION:** Do not disturb the deflection yoke or magnet assembly on the picture tube neck. Care must be taken to keep these assemblies intact, unless picture tube is being replaced. Discharge the picture tube to the coating before handling the tube.

1. Remove chassis, referring to Chassis Removal instructions.
2. Place cabinet's front face down on a soft surface.
3. Remove the screw on each corner of the picture tube and GENTLY lift the picture tube out of the cabinet.
4. Install a replacement picture tube in reverse order. Properly install the degaussing coil and picture tube grounding lead on the picture tube. See Figure 2.

Note: If Picture Tube is being replaced, mount the Degaussing Coil properly on the tube. See Figure 2.

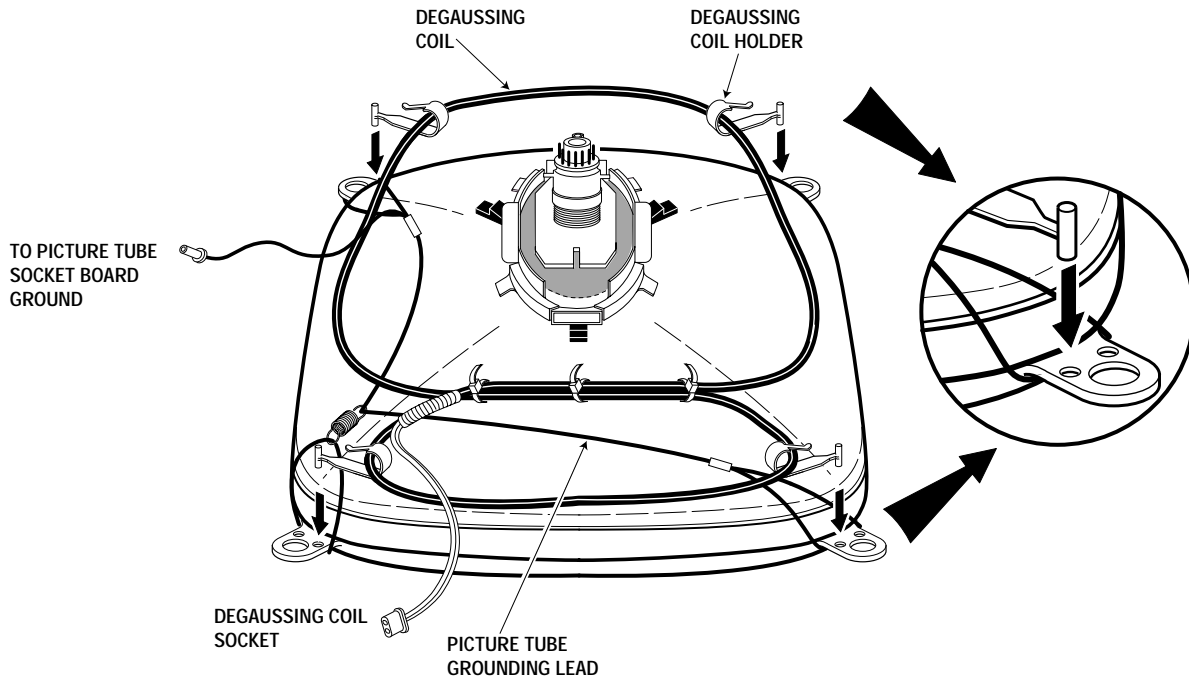


Figure 2. Picture Tube Removal

# CHASSIS ELECTRICAL PARTS LIST

**CAUTION:** To Protect against electrical shock and for continued product safety, refer to **SAFETY PRECAUTIONS**, **X-RADIATION PRECAUTIONS**, **HIGH VOLTAGE HOLD-DOWN TEST**, and **PRODUCT SAFETY NOTICE** on Page 2.

## PRODUCT SAFETY NOTICE

**PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A REPLACEMENT IS MADE IN ANY AREA OF A RECEIVER. COMPONENTS INDICATED BY A STAR (★) IN THIS PARTS LIST AND THE SCHEMATIC DIAGRAM DESIGNATE COMPONENTS IN WHICH SAFETY CAN BE OF SPECIAL SIGNIFICANCE. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS DESIGNATED ON THE FOLLOWING PARTS LIST BE USED FOR COMPONENT REPLACEMENT DESIGNATED BY A STAR. NO DEVIATIONS FROM RESISTANCE, WATTAGE, AND VOLTAGE RATINGS MAY BE MADE FOR REPLACEMENT ITEMS DESIGNATED BY A STAR.**

Notes: Parts having Location Number are located on the following boards.

Numbers 300 Series .....On the A/V Board and Main Board  
 Numbers 700 Series .....On the Picture Tube Socket Board.  
 Numbers 900 Series .....Out of Board.  
 Numbers 1000 Series .....On the A/V Board and Main Board  
 Numbers 1700 Series .....On the Picture Tube Socket Board and Main Board  
 Numbers 3400 Series .....On the A/V Board and Main Board  
 All Other Numbers .....On the Main Board

Note: Schematic part location numbers may not always match with the part descriptions.  
 The part descriptions are correct and should be used.

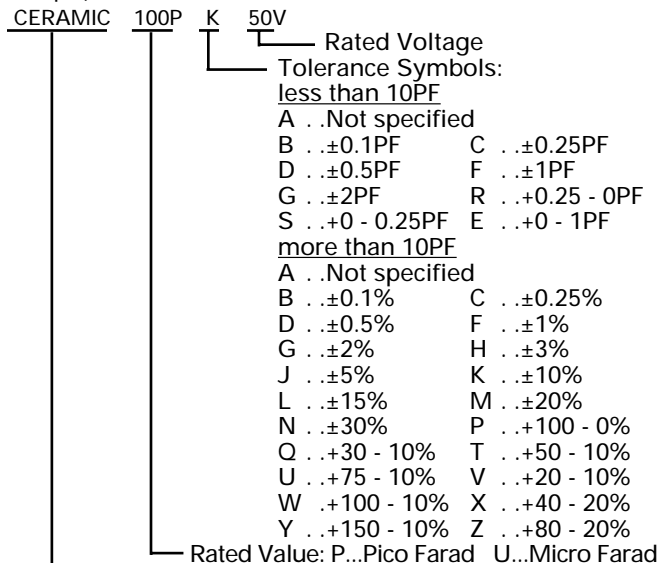
Schematic Location	Part No.	Description
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## CAPACITORS

NOTES:

Read description of the Capacitor as follows:

(Example)



Material:

CERAMIC .....Ceramic  
 MT-PAPER .....Metalized Paper  
 POLYESTER .....Polyester  
 MT-POLYEST .....Metalized Polyester  
 POLYPRO .....Polypropylene  
 MT-POLYPRO .....Metalized Polypropylene  
 COMPO-FILM .....Composite Film  
 MT-COMPO .....Metalized Composite  
 STYRENE .....Styrene  
 TA-SOLID .....Tantalum Solid  
 AL-SOLID .....Aluminum Solid  
 ELECT .....Electrolytic  
 NP-ELECT .....Non-Polarized Electrolytic  
 OS-SOLID .....Aluminum Solid with Organic  
 Semiconductive Electrolytic

Schematic Location	Part No.	Description
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C001	404 084 3801	ELECT 1U M 50V
C002	404 084 3801	ELECT 1U M 50V
C005	404 087 1200	ELECT 0.1U M 50V
C007	404 089 2700	ELECT 100U M 25V
C008	403 224 6009	CERAMIC 4700P K 50V
C009	403 224 6009	CERAMIC 4700P K 50V
C010	404 084 3306	ELECT 470U M 16V
C011	404 084 3306	ELECT 470U M 16V
C015	404 087 2306	ELECT 220U M 25V
C017	403 357 9601	CERAMIC 0.1U Z 50V
C101	404 084 2200	ELECT 100U M 6.3V
C103	403 224 6108	CERAMIC 0.01U K 50V
C106	404 084 4105	ELECT 3.3U M 50V
C128	404 084 2705	ELECT 10U M 16V
C130	403 224 5705	CERAMIC 1000P K 50V
C131	404 084 3801	ELECT 1U M 50V
C133	403 224 6108	CERAMIC 0.01U K 50V
C134	403 235 5404	CERAMIC 1500P K 50V
C137	403 364 7508	CERAMIC 10P J 50V
C142	403 343 4603	CERAMIC 0.022U K 50V
C143	403 224 6108	CERAMIC 0.01U K 50V
C146	403 224 6108	CERAMIC 0.01U K 50V
C147	404 084 2200	ELECT 100U M 6.3V
C151	404 084 3702	ELECT 0.47U M 50V
C153	404 084 3702	ELECT 0.47U M 50V
C161	403 357 9601	CERAMIC 0.1U Z 50V
C211	403 069 8305	CERAMIC 0.01U Z 50V
C212	404 084 4006	ELECT 2.2U M 50V
C221	404 084 6901	NP-ELECT 1U M 50V
C247	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
C252	404 084 5102	POLYESTER 0.1UK 63V
C253	404 084 3702	ELECT 0.47U M 50V
C256	404 084 3801	ELECT 1U M 50V
C257	403 224 6108	CERAMIC 0.01U K 50V
C258	404 087 0500	ELECT 220U M 10V
C271	404 087 0500	ELECT 220U M 10V

Schematic Location	Part No.	Description
C272	404 084 4105	ELECT 3.3U M 50V
C284	404 084 3207	ELECT 47U M 16V
C285	403 224 6108	CERAMIC 0.01U K 50V
C301	404 084 2705	ELECT 10U M 16V
C302	404 084 2705	ELECT 10U M 16V
C303	403 357 9601	CERAMIC 0.1U Z 50V
C306	403 357 9601	CERAMIC 0.1U Z 50V
C307	404 084 2804	ELECT 100U M 16V
C308	403 319 4804	CERAMIC 0.22U Z 16V
C309	403 357 9304	CERAMIC 560P J 50V
C310	403 224 5507	CERAMIC 22P J 50V
C311	404 084 3207	ELECT 47U M 16V
C312	403 357 9601	CERAMIC 0.1U Z 50V
C313	403 086 2607	NP-ELECT 1U M 50V
C314	403 357 9601	CERAMIC 0.1U Z 50V
C315	403 235 0102	CERAMIC 39P J 50V
C316	403 357 9601	CERAMIC 0.1U Z 50V
C317	403 357 9601	CERAMIC 0.1U Z 50V
C318	403 234 9304	CERAMIC 8P D 50V
C319	403 357 9601	CERAMIC 0.1U Z 50V
C320	403 319 4804	CERAMIC 0.22U Z 16V
C322	403 357 9601	CERAMIC 0.1U Z 50V
C323	403 086 2607	NP-ELECT 1U M 50V
C324	404 084 3801	ELECT 1U M 50V
C326	403 357 9601	CERAMIC 0.1U Z 50V
C331	403 235 0102	CERAMIC 39P J 50V
C332	403 234 9304	CERAMIC 8P D 50V
C401	404 084 3306	ELECT 470U M 16V
C402	403 224 6108	CERAMIC 0.01U K 50V
C403	404 086 6800	POLYESTER 6800P J 63V
C405	404 084 6901	NP-ELECT 1U M 50V
★ C406	403 076 3607	CERAMIC 470P K 500V
★ C407	403 076 0507	CERAMIC 2200P K 500V
C408	403 103 0005	ELECT 4.7U M 160V
★ C411	403 343 8502	MT-POLYPRO 8600P H 1.5KV
	404 077 5003	MT-POLYPRO 8600P H 1.5KV
★ C412	403 343 8205	MT-POLYPRO 7800P H 1.5KV
	404 077 4600	MT-POLYPRO 7800P H 1.5KV
★ C413	403 083 4307	POLYPRO 0.022U J 400V
★ C414	403 083 3904	POLYPRO 0.018U J 400V
★ C416	403 346 6822	MT-POLYPRO 0.2U J 250V
	403 371 0608	MT-POLYPRO 0.2U J 250V
	403 372 6500	MT-POLYPRO 0.2 U J 250V
★ C417	403 358 7200	MT-POLYPRO 0.15U J 250V
	403 372 6302	MT-POLYPRO 0.15U J 250V
	403 375 0604	MT-POLYPRO 0.15U J 250V
★ C419	403 158 9107	MT-POLYEST 2.2U K 100V
C421	404 091 6406	ELECT 220U M 6.3V
C422	403 066 6106	MT-POLYEST 0.47U J 250V
C427	403 224 6108	CERAMIC 0.01U K 50V
C462	403 235 0607	CERAMIC 100P J 50V
C463	404 086 5506	POLYESTER 0.015U K 63V
C466	404 084 4204	ELECT 4.7U M 50V
C482	404 084 4709	ELECT 47U M 1 00V
C484	404 084 4204	ELECT 4.7U M 50V
★ C486	403 076 3607	CERAMIC 470P K 500V
C487	404 087 3402	ELECT 1000U M 35V
C489	404 084 3306	ELECT 470U M 16V
C493	404 056 5307	NP-ELECT 2.2U M 100V

Schematic Location	Part No.	Description
C497	404 084 2200	ELECT 100U M 6.3V
C502	403 053 2104	ELECT 220U M 35V
C503	403 276 0208	ELECT 2.2U K 50V
C504	403 045 9807	ELECT 2200U M 25V
C505	404 084 5706	MT-POLYEST 0.47UJ 63V
C506	404 089 5909	POLYESTER 5600P K 63V
C509	404 084 5706	MT-POLYEST 0.47UJ 63V
★ C511	403 058 5407	POLYESTER 0.15U K 50V
	403 141 5802	POLYESTER 0.15U J 50V
	403 274 9302	POLYESTER 0.15U J 50V
	403 274 9401	POLYESTER 0.15U K 50V
C516	404 084 4204	ELECT 4.7U M 50V
★ C601	404 089 1703	MT-POLYEST 0.22U M 275V
★ C608	403 222 1907	CERAMIC 2200P K 1K
	403 232 0204	CERAMIC 2200P K 1K
	403 263 6305	CERAMIC 2200P K 1K
★ C609	404 075 5005	ELECT 470U M 200V
	404 089 3509	ELECT 470U M 200V
★ C611	403 238 8501	CERAMIC 220P K 1K
	403 325 5109	CERAMIC 220P K 1K
C612	404 084 5102	POLYESTER 0.1UK 63V
C613	404 086 6503	POLYESTER 0.047U J 63V
C614	404 084 5003	POLYESTER 0.01U J 63V
C622	404 084 3405	ELECT 1000U M 25V
★ C625	403 232 0402	CERAMIC 2700P K 1K
	403 266 5008	CERAMIC 2700P K 1K
C626	403 134 6403	ELECT 2200U M 16V
C628A	404 037 0703	ELECT 470U M 160V
C629	404 084 3009	ELECT 220U M 16V
C630	404 084 3801	ELECT 1U M 50V
★ C631	404 088 2909	CERAMIC 1000P M 250V
	404 088 7102	CERAMIC 1000P M 250V
★ C632	404 088 3005	CERAMIC 2200P M 250V
	404 088 7201	CERAMIC 2200P M 250V
C634	404 084 3207	ELECT 47U M 16V
C636	403 224 6108	CERAMIC 0.01U K 50V
C641	404 084 4303	ELECT 47U M 50V
C642	404 084 3801	ELECT 1U M 50V
C683	404 088 5801	ELECT 33U M 16V
C688	404 084 2804	ELECT 100U M 16V
C689	403 357 9601	CERAMIC 0.1U Z 50V
C693	404 087 1200	ELECT 0.1U M 50V
C731	404 087 0500	ELECT 220U M 10V
C732	404 084 3801	ELECT 1U M 50V
★ C742	403 077 2807	CERAMIC 1000P Z 2K
C745	403 159 7439	MT-POLYEST 0.1U K 250V
C747	403 260 0900	ELECT 47U M 250V
C801	403 224 6108	CERAMIC 0.01U K 50V
C806	404 084 2705	ELECT 10U M 16V
C808	403 224 5507	CERAMIC 22P J 50V
C809	403 224 5507	CERAMIC 22P J 50V
C811	404 084 3801	ELECT 1U M 50V
C822	404 084 2408	ELECT 470U M 6 .3V
C829	404 084 3801	ELECT 1U M 50V
C835	403 224 6108	CERAMIC 0.01U K 50V
C853	404 087 1200	ELECT 0.1U M 50V
C854	403 235 1000	CERAMIC 220P J 50V
C856	404 084 3801	ELECT 1U M 50V
C857	403 235 1000	CERAMIC 220P J 50V

Schematic Location	Part No.	Description		
C858	403 224 5705	CERAMIC	1000P K	50V
C861	403 224 6108	CERAMIC	0.01U K	50V
C1001	404 084 2705	ELECT	10U M	16V
C1002	404 088 5702	ELECT	22U M	16V
C1004	403 224 6108	CERAMIC	0.01U K	50V
C1005	403 224 6108	CERAMIC	0.01U K	50V
C1006	404 084 2705	ELECT	10U M	16V
C1007	403 224 6108	CERAMIC	0.01U K	50V
C1011	403 224 6108	CERAMIC	0.01U K	50V
C1021	404 084 2705	ELECT	10U M	16V
C1022	404 088 5702	ELECT	22U M	16V
C1026	404 084 2705	ELECT	10U M	16V
C1031	403 224 6108	CERAMIC	0.01U K	50V
C1032	404 084 3009	ELECT	220U M	16V
C1051	404 084 2705	ELECT	10U M	16V
C1054	403 357 9601	CERAMIC	0.1U Z	50V
C1055	403 357 9601	CERAMIC	0.1U Z	50V
C1081	404 084 3207	ELECT	47U M	16V
C1091	403 224 6108	CERAMIC	0.01U K	50V
C1201	404 084 3801	ELECT	1U M	50V
C1206	404 084 3207	ELECT	47U M	16V
C1211	404 084 3801	ELECT	1U M	50V
C1701	404 086 5506	POLYESTER	0.015U K	63V
C1702	404 089 2700	ELECT	100U M	25V
C1704	403 235 4902	CERAMIC	470P K	50V
C1705	404 084 2903	ELECT 1	000U M	16V
C1706	404 084 2804	ELECT	100U M	16V
C1708	403 235 0805	CERAMIC	150P J	50V
C1709	403 235 0300	CERAMIC	56P J	50V
C1711	404 086 5001	POLYESTER	0.01U K	63V
C1712	404 086 5209	POLYESTER	0.012U J	63V
C1713	403 071 5606	CERAMIC	220P K	50V
C1714	403 075 4209	CERAMIC	820P K	50V
C1715	403 065 1409	POLYESTER	4700P K	200V
C1715	403 101 9208	POLYESTER	4700P K	200V
C1716	403 075 4209	CERAMIC	820P K	50V
C1717	404 086 7906	MT-POLYEST	0.22U J	63V
C1718	404 086 6404	POLYESTER	4700P K	63V
C1719	403 055 1006	ELECT	10U M	160V
C1721	404 084 3207	ELECT	47U M	16V
C1722	403 102 9900	ELECT	22U M	160V
C1724	403 072 4400	CERAMIC	270P K	50V
C1726	403 035 8407	CERAMIC	270P K	500V
C1727	404 084 2804	ELECT	100U M	16V
C1740	404 084 3801	ELECT	1U M	50V
C1748	403 069 8305	CERAMIC	0.01U Z	50V
C1749	404 087 3204	ELECT	100U M	35V
C1902	404 084 2705	ELECT	10U M	16V
C3401	404 087 1200	ELECT	0.1U M	50V
C3404	404 089 6500	NP-ELECT	4.7U M	50V
C3406	403 325 2504	CERAMIC	0.012U K	50V
C3407	403 235 5701	CERAMIC	5600P K	50V
C3408	404 084 3702	ELECT	0.47U M	50V
C3411	404 084 3702	ELECT	0.47U M	50V
C3412	404 084 3207	ELECT	47U M	16V
C3413	404 091 6604	ELECT	4.7U M	25V
C3414	404 084 2804	ELECT	100U M	16V
C3416	404 089 6500	NP-ELECT	4.7U M	50V
C3417	404 091 6604	ELECT	4.7U M	25V

Schematic Location	Part No.	Description		
C3418	404 089 6500	NP-ELECT	4.7U M	50V
C3421	403 224 5606	CERAMIC	2700P K	50V
C3422	403 323 3602	CERAMIC	0.047U K	50V
C3423	403 342 9203	TA-SOLID	3.3U K	10V
C3424	404 089 6500	NP-ELECT	4.7U M	50V
C3426	403 299 1820	TA-SOLID	10U K	10V
C3427	404 084 3801	ELECT	1U M	50V
C3431	403 224 6009	CERAMIC	4700P K	50V
C3432	404 087 1200	ELECT	0.1U M	50V
C3433	403 224 6009	CERAMIC	4700P K	50V
C3434	403 343 4603	CERAMIC	0.022U K	50V
C3435	404 091 6604	ELECT	4.7U M	25V
C3436	404 089 6500	NP-ELECT	4.7U M	50V
C3437	404 091 6604	ELECT	4.7U M	25V
C3439	404 089 6500	NP-ELECT	4.7U M	50V
C3441	404 091 6604	ELECT	4.7U M	25V
C3442	404 091 6604	ELECT	4.7U M	25V
C3443	404 091 6604	ELECT	4.7U M	25V
C3444	404 091 6604	ELECT	4.7U M	25V
C3445	404 091 6604	ELECT	4.7U M	25V
C3447	404 091 6604	ELECT	4.7U M	25V

## DIODES

D101	408 047 6205	ZENER DIODE MTZJ36A (36V)
D276	407 149 0807	DIODE 1SS355 TE-17
D277	407 149 0807	DIODE 1SS355 TE-17
D278	407 149 0807	DIODE 1SS355 TE-17
D279	407 149 0807	DIODE 1SS355 TE-17
D351	408 047 6502	ZENER DIODE MTZJ5.1A
D406	407 006 4108	DIODE ERB44-04
D407	407 095 8001	DIODE ERD07-15L
D408	407 222 4401	ZENER DIODE 1Z150 (150V)
★ D421	407 158 1307	ZENER DIODE HZ11B2L (11V)
★ D422	407 158 1307	ZENER DIODE HZ11B2L (11V)
D428	407 054 5706	ZENER DIODE RD15EB1 (15V)
	407 099 6904	ZENER DIODE MTZJ15A (15V)
D429	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
D461	407 013 4207	DIODE 1S2076
	407 013 4306	DIODE 1S2076A
	407 078 2705	DIODE 1SS244
D481	407 007 6606	DIODE ES1
	407 124 5506	DIODE RMPG06G
	407 124 6404	DIODE ERA18-04
D482	407 011 4407	DIODE TVR1G
D483	407 007 6606	DIODE ES1
	407 124 5506	DIODE RMPG06G
	407 124 6404	DIODE ERA18-04
D486	407 054 0008	ZENER DIODE RD10EB2 (10V)
	407 099 6102	ZENER DIODE MTZJ10B (10V)
D490	408 047 7707	ZENER DIODE MTZJ5.6C (5.6V)
D501	407 005 8602	DIODE ERA15-02
	407 011 3004	DIODE S5277B
	407 088 6502	DIODE MPG06D
	408 009 9404	DIODE 1N4002ID
D502	407 118 2207	ZENER DIODE 1Z75 (75V)

Schematic Location	Part No.	Description
D508	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
★ D601	407 005 7605	DIODE EM2B
	407 013 3200	DIODE 1S1887A
	408 008 8606	DIODE GP15G
★ D602	407 005 7605	DIODE EM2B
	407 013 3200	DIODE 1S1887A
	408 008 8606	DIODE GP15G
★ D603	407 005 7605	DIODE EM2B
	407 013 3200	DIODE 1S1887A
	408 008 8606	DIODE GP15G
★ D604	407 005 7605	DIODE EM2B
	407 013 3200	DIODE 1S1887A
	408 008 8606	DIODE GP15G
D611	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
★ D612	407 231 2801	PHOTO COUPLE PC123YC2
	407 218 0707	PHOTO COUPLE PCTLP421
D613	407 057 9800	ZENER DIODE RD9.1EB3 (9.1V)
	407 063 9702	ZENER DIODE MTZJ9.1C (9.1V)
D614	407 006 0100	DIODE ERA91-02
★ D621	407 106 2806	DIODE RU3YX
★ D624	407 129 6706	DIODE RU4YX LF-L1
	407 211 6102	DIODE FE301-1L43
★ D625A	407 191 3900	DIODE FML-G16S
D627	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
D629	407 054 7007	ZENER DIODE RD16EB1 (16V)
	407 099 7208	ZENER DIODE MTZJ16A (16V)
D641	407 007 7801	DIODE EU2Z
D642	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
D643	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
D680	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
D683	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
D687	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
D693	407 057 2702	ZENER DIODE RD6.2EB2 (6.2V)
	407 099 5402	ZENER DIODE MTZJ6.2B (6.2V)
D694	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
D708	401 012 8105	CARBON 100K JA 1/4W
D741	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
D754	408 048 2404	ZENER DIODE MTZJ12B (12V)

Schematic Location	Part No.	Description
D801	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
D831	407 222 5903	ZD UDZS-TE-173.6B (3.6V)
D834	407 055 2803	ZENER DIODE RD22EB1 (22V)
	407 099 8205	ZENER DIODE MTZJ22A (22V)
D836	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
D843	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
D1002	408 047 2306	ZENER DIODE MTZJ10B (10V)
D1006	408 047 2306	ZENER DIODE MTZJ10B (10V)
D1011	408 047 2306	ZENER DIODE MTZJ10B (10V)
D1022	408 047 2306	ZENER DIODE MTZJ10B (10V)
D1026	408 047 2306	ZENER DIODE MTZJ10B (10V)
D1031	408 047 2306	ZENER DIODE MTZJ10B (10V)
D1705	407 108 5300	DIODE SB07-03N
D1707	407 108 5300	DIODE SB07-03N
D1708	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
	408 008 2406	DIODE 1N4148
D1901	408 047 9206	ZENER DIODE MTZJ7.5C (7.5V)

## INTEGRATED CIRCUITS

IC001	409 389 4607	IC LA4600
★ IC101	409 526 7221	IC LA76835NM-TBM
IC301	409 544 5807	IC LA76604M-TLM-E
★ IC501P	409 527 9006	IC LA7849
★ IC601	409 172 8102	IC SE130NH
IC681	409 066 7303	IC UPC78L05J
	409 241 8309	IC TA78L05S
IC701	409 468 8403	IC TDA6103Q/N3
IC801	410 456 7803	IC M37272M8-***FP T4
IC802	409 333 3700	IC 24LC02B/P
	409 376 1503	IC ST24C02B6
	409 440 8902	IC M24C02-BN6
	409 495 6908	IC CAT24WC02P
	409 497 0706	IC S524C20D21-DCB0
	409 528 8404	IC S524A40X21-DCB0
IC1001	409 051 3006	IC TC4053BP
IC1002	409 051 3006	IC TC4053BP
IC1003	409 051 3006	IC TC4053BP
IC1201	409 051 2930	IC TC4053BF-EL
IC3401	409 467 1108	IC CXA2134Q-T6

## COILS

★ LF601	645 042 7510	LINE FILTER
L164	645 003 9713	INDUCTOR, 15U K
	645 016 2657	INDUCTOR, 15U K
L256	610 031 3873	INDUCTOR, 10U K
	645 016 2534	INDUCTOR, 10U K
L301	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K
L302	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K



Schematic Location	Part No.	Description
L306	645 008 2856	INDUCTOR, 39U K
	645 016 3012	INDUCTOR, 39U K
L401	645 017 7675	INDUCTOR, 3.3U, FILTER
L402	652 000 2180	CORE, PIPE
L403	610 078 6820	PIPE CORE
	652 000 1282	CORE, PIPE
★ L413	645 029 8035	COIL, LINEARITY
L414	610 031 1367	INDUCTOR 202J
	610 211 3488	INDUCTOR
	645 005 5645	INDUCTOR, 2200U K
	645 007 8361	INDUCTOR, 2000U
L416	645 016 9120	INDUCTOR, 420UH
	645 047 2541	INDUCTOR, 420U
L602	645 005 0763	CORE, PIPE
L611	610 078 5946	PIPE CORE
	652 000 1725	CORE, PIPE
L612	610 078 5946	PIPE CORE
	652 000 1725	CORE, PIPE
L621	610 078 5946	PIPE CORE
	652 000 1725	CORE, PIPE
L623	610 078 5946	PIPE CORE
	652 000 1725	CORE, PIPE
L625	610 078 5946	PIPE CORE
	652 000 1725	CORE, PIPE
L628	610 078 5946	PIPE CORE
	652 000 1725	CORE, PIPE
L721	645 001 4796	INDUCTOR, 150U K
L801	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K
L821	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K
L851	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K
L881	645 006 2490	INDUCTOR, 1U K
	645 016 2411	INDUCTOR, 1U K
L882	645 006 2490	INDUCTOR, 1U K
	645 016 2411	INDUCTOR, 1U K
★ L901	645 048 1635	ASSY, COIL, DEGAUSSING
L1701	610 031 3873	INDUCTOR, 10U K
	645 016 2534	INDUCTOR, 10U K
L1702	645 008 2825	INDUCTOR, 27U K
	645 016 2893	INDUCTOR, 27U K
L1703	610 078 5946	PIPE CORE
	652 000 1725	CORE, PIPE
L1704	610 078 5946	PIPE CORE
	652 000 1725	CORE, PIPE
L1705	610 078 5946	PIPE CORE
	652 000 1725	CORE, PIPE
L1706	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K
L1901	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K

#### TRANSISTORS

Q001	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR

Schematic Location	Part No.	Description
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
Q135	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
Q202	405 001 7407	TR 2SA1015-O(SAN)
	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3109	TR 2SA564A-Q(CU)
	405 004 3208	TR 2SA564A-R(CU)
Q208	405 001 7407	TR 2SA1015-O(SAN)
	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3109	TR 2SA564A-Q(CU)
	405 004 3208	TR 2SA564A-R(CU)
Q271	405 002 0308	TR 2SA1037K-T-96-R
	405 002 0407	TR 2SA1037K-T-96-S
	405 002 6726	TR 2SA1179-M6
	405 002 6924	TR 2SA1179-M7-TB
	405 134 5925	TR 2SA1037AK T146 R
	405 147 2205	TR 2SA1037AK T146 S
	405 163 1503	TR 2SA1179N-M6-TB
	405 163 2708	TR 2SA1179N-M7-TB
Q301	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
Q302	405 002 0308	TR 2SA1037K-T-96-R
	405 002 0407	TR 2SA1037K-T-96-S
	405 002 6726	TR 2SA1179-M6
	405 002 6924	TR 2SA1179-M7-TB
	405 134 5925	TR 2SA1037AK T146 R
	405 147 2205	TR 2SA1037AK T146 S
	405 163 1503	TR 2SA1179N-M6-TB
	405 163 2708	TR 2SA1179N-M7-TB
Q303	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
Q315	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB

Schematic Location	Part No.	Description
Q315 (Cont.)	405 163 1701	TR 2SC2812N-L7-TB
Q321	405 002 0308	TR 2SA1037K-T-96-R
	405 002 0407	TR 2SA1037K-T-96-S
	405 002 6726	TR 2SA1179-M6
	405 002 6924	TR 2SA1179-M7-TB
	405 134 5925	TR 2SA1037AK T146 R
	405 147 2205	TR 2SA1037AK T146 S
	405 163 1503	TR 2SA1179N-M6-TB
	405 163 2708	TR 2SA1179N-M7-TB
Q401	405 013 6207	TR 2SC2271-D-CTV
	405 013 6306	TR 2SC2271-E-CTV
	405 029 7106	TR 2SC2271-D
	405 029 7205	TR 2SC2271-E
★ Q402	405 163 4306	TR 2SD2645-YB
Q486	405 023 5009	TR 2SD400-E-MP
	405 023 5306	TR 2SD400-F-MP
Q490	405 023 5009	TR 2SD400-E-MP
	405 023 5306	TR 2SD400-F-MP
★ Q601	405 148 1801	TR 2SK2638
Q611	405 013 6801	TR 2SC2274-E
	405 013 7006	TR 2SC2274-F
Q612	405 006 6504	TR 2SA984-E
	405 006 6702	TR 2SA984-F
Q613	405 013 6801	TR 2SC2274-E
	405 013 7006	TR 2SC2274-F
Q627	405 009 6907	TR 2SB985-S
	405 009 7003	TR 2SB985-T
	405 089 0000	TR 2SA1707-S
	405 089 0109	TR 2SA1707-T
Q635	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
Q641	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
Q681	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA

Schematic Location	Part No.	Description
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
Q688	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3208	TR 2SA564A-R(CU)
	405 006 1806	TR 2SA933S-R
	405 151 3304	TR 2SA608NF-NPA
Q693	406 000 6804	TR 2SA1015-GR(SAN)
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
Q695	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3208	TR 2SA564A-R(CU)
	405 004 4809	TR 2SA608-F-CTV-NP
Q701	405 001 7407	TR 2SA1015-O(SAN)
	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3109	TR 2SA564A-Q(CU)
	405 004 3208	TR 2SA564A-R(CU)
	405 006 1707	TR 2SA933S-Q
	405 006 1806	TR 2SA933S-R
	405 151 3304	TR 2SA608NF-NPA
Q711	406 000 6804	TR 2SA1015-GR(SAN)
	405 001 7407	TR 2SA1015-O(SAN)
	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3109	TR 2SA564A-Q(CU)
	405 004 3208	TR 2SA564A-R(CU)
	405 006 1707	TR 2SA933S-Q
	405 006 1806	TR 2SA933S-R
	405 151 3304	TR 2SA608NF-NPA
Q721	406 000 6804	TR 2SA1015-GR(SAN)
	405 001 7407	TR 2SA1015-O(SAN)
	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3109	TR 2SA564A-Q(CU)
	405 004 3208	TR 2SA564A-R(CU)
	405 006 1707	TR 2SA933S-Q
	405 006 1806	TR 2SA933S-R
	405 151 3304	TR 2SA608NF-NPA
Q831	406 000 6804	TR 2SA1015-GR(SAN)
	405 001 7407	TR 2SA1015-O(SAN)
	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3109	TR 2SA564A-Q(CU)
	405 004 3208	TR 2SA564A-R(CU)
	405 006 1707	TR 2SA933S-Q
	405 006 1806	TR 2SA933S-R
	405 151 3304	TR 2SA608NF-NPA
Q1001	406 000 6804	TR 2SA1015-GR(SAN)
	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB

Schematic Location	Part No.	Description
Q1201	405 163 1701	TR 2SC2812N-L7-TB
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
Q1202	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
Q1211	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
Q1212	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
Q1700	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
	405 001 7407	TR 2SA1015-O(SAN)
	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3109	TR 2SA564A-Q(CU)
	405 004 3208	TR 2SA564A-R(CU)
	405 006 1707	TR 2SA933S-Q
Q1701	405 006 1806	TR 2SA933S-R
	405 151 3304	TR 2SA608NF-NPA
	406 000 6804	TR 2SA1015-GR(SAN)
	405 001 7407	TR 2SA1015-O(SAN)
	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3109	TR 2SA564A-Q(CU)
	405 004 3208	TR 2SA564A-R(CU)
	405 006 1707	TR 2SA933S-Q
	405 006 1806	TR 2SA933S-R

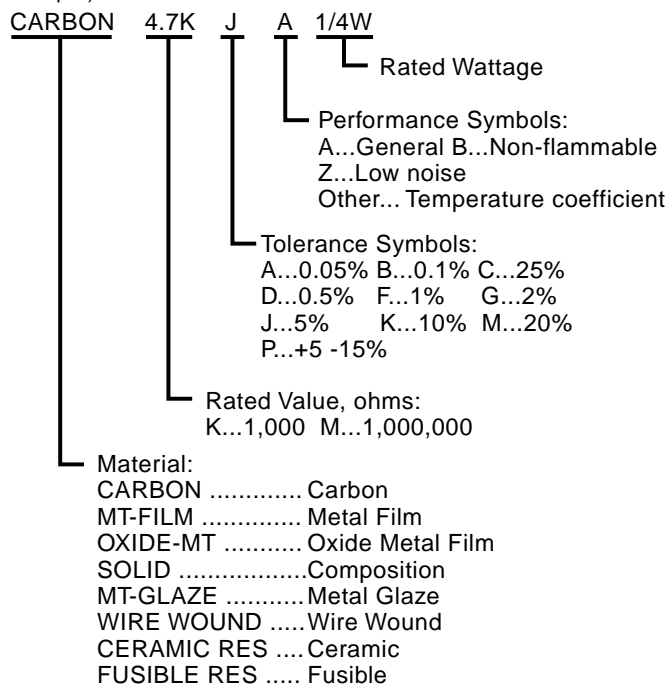
Schematic Location	Part No.	Description
Q1702	405 151 3304	TR 2SA608NF-NPA
	406 000 6804	TR 2SA1015-GR(SAN)
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
Q1704	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
Q1705	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
Q1706	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
Q1707	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA
	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR

Schematic Location	Part No.	Description
Q1708	405 001 7407	TR 2SA1015-O(SAN)
	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3109	TR 2SA564A-Q(CU)
	405 004 3208	TR 2SA564A-R(CU)
	405 006 1707	TR 2SA933S-Q
	405 006 1806	TR 2SA933S-R
	405 151 3304	TR 2SA608NF-NPA
	406 000 6804	TR 2SA1015-GR(SAN)
Q1709	405 108 4903	TR 2SA1837-LB
Q1711	405 108 5009	TR 2SC4793-LB
Q1712	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
	405 151 8705	TR 2SC536NG-NPA
	405 157 0505	TR 2SC536NF-NPA

#### NOTES:

Read description of the Resistor as follows:

(Example)



Schematic Location	Part No.	Description
R107	401 023 2802	CARBON 8.2K JA 1/4W
R131	401 256 0408	MT-GLAZE 12K JA 1/10W
R133	401 256 3805	MT-GLAZE 1.5K JA 1/10W
R135	401 255 6500	MT-GLAZE 100 JA 1/10W
R137	401 150 6209	MT-GLAZE 1K JA 1/10W
R142	401 026 4605	CARBON 33K JA 1/6W
R143	401 150 6209	MT-GLAZE 1K JA 1/10W
R151	401 152 3206	MT-GLAZE 330 JA 1/10W
R161	401 150 5806	MT-GLAZE 100K JA 1/10W
R162	401 150 5806	MT-GLAZE 100K JA 1/10W
R163	401 256 0002	MT-GLAZE 120 JA 1/10W
R164	401 150 6209	MT-GLAZE 1K JA 1/10W
R166	401 162 3609	MT-GLAZE 470 JA 1/10W
R167	401 256 2907	MT-GLAZE 150 JA 1/10W
R201	401 026 9600	CARBON 470 JA 1/6W
R209	401 024 6700	CARBON 100 JA 1/6W
R212	401 256 7100	MT-GLAZE 680K JA 1/10W
R251	401 150 5905	MT-GLAZE 10K JA 1/10W
R252	401 027 2600	CARBON 5.6K JA 1/6W
R272	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R273	401 256 7308	MT-GLAZE 6.8K JA 1/10W
R276	401 024 9701	CARBON 12K JA 1/6W
R277	401 150 5905	MT-GLAZE 10K JA 1/10W
R278	401 150 6209	MT-GLAZE 1K JA 1/10W
R279	401 256 7506	MT-GLAZE 390 JA 1/10W
R281	401 150 5905	MT-GLAZE 10K JA 1/10W
R284	401 026 9303	CARBON 47 JA 1/6W
R287	401 024 6700	CARBON 100 JA 1/6W
R288	401 024 6700	CARBON 100 JA 1/6W
R289	401 024 6700	CARBON 100 JA 1/6W
R302	401 256 0101	MT-GLAZE 8.2K JA 1/10W
R303	401 150 5905	MT-GLAZE 10K JA 1/10W
R304	401 256 0309	MT-GLAZE 820 JA 1/10W
R306	401 256 0309	MT-GLAZE 820 JA 1/10W
R307	401 256 6905	MT-GLAZE 680 JA 1/10W
R308	401 162 2701	MT-GLAZE 180 JA 1/10W
R309	401 150 6100	MT-GLAZE 2.2K JA 1/10W
R312	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R313	401 150 6209	MT-GLAZE 1K JA 1/10W
R315	401 162 2404	MT-GLAZE 1.2K JA 1/10W
R316	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
R317	401 256 4109	MT-GLAZE 56 JA 1/10W
R318	401 150 6209	MT-GLAZE 1K JA 1/10W
R319	401 256 0101	MT-GLAZE 8.2K JA 1/10W
R321	401 255 6500	MT-GLAZE 100 JA 1/10W
R322	401 150 6209	MT-GLAZE 1K JA 1/10W
R323	401 024 9305	CARBON 1.2K JA 1/6W
R324	401 027 2600	CARBON 5.6K JA 1/6W
R326	401 024 9305	CARBON 1.2K JA 1/6W
R331	401 162 2404	MT-GLAZE 1.2K JA 1/10W
R341	401 150 5905	MT-GLAZE 10K JA 1/10W
R354	401 024 7400	CARBON 10K JA 1/6W
R400	401 024 6700	CARBON 100 JA 1/6W
★ R401	401 012 4503	CARBON 100 JA 1/4W
★ R402	401 012 4503	CARBON 100 JA 1/4W
R404	401 026 3905	CARBON 330 JA 1/6W
R405	401 162 4101	MT-GLAZE 5.6K JA 1/10W
★ R406	401 011 2302	CARBON 6.8K JA 1/2W
★ R407	401 069 3702	OXIDE-MT 6.8K JA 2W

R001	401 024 9701	CARBON 12K JA 1/6W
R002	401 024 9701	CARBON 12K JA 1/6W
R003	401 256 3805	MT-GLAZE 1.5K JA 1/10W
R004	401 256 3805	MT-GLAZE 1.5K JA 1/10W
R008	401 026 9907	CARBON 4.7K JA 1/6W
★ R009	401 064 5701	OXIDE-MT 1.8 JA 2W
★ R010	401 064 5701	OXIDE-MT 1.8 JA 2W
R011	401 026 3905	CARBON 330 JA 1/6W
R012	401 027 2600	CARBON 5.6K JA 1/6W
★ R106	401 008 2001	CARBON 18K JA 1/2W

Schematic Location	Part No.	Description
★ R408	401 058 5007	OXIDE-MT 10K JA 1W
★ R413	402 085 5909	OXIDE-MT 3.9JB 5W
R416	401 018 1605	CARBON 33 JA 1/4W
★ R418	401 009 1607	CARBON 2.7K JB 1/2W
★ R422	401 052 6802	MT-FILM 10K FA 1/6W
★ R423	401 264 9301	MT-GLAZE 3.3K FA 1/10W
R426	401 256 6905	MT-GLAZE 680 JA 1/10W
R427	401 027 2105	CARBON 56 JA 1/6W
R428	401 025 1902	CARBON 15K JA 1/6W
R430	401 150 6209	MT-GLAZE 1K JA 1/10W
R443	401 026 9907	CARBON 4.7K JA 1/6W
R444	401 025 4606	CARBON 18K JA 1/6W
R449	401 265 1700	MT-GLAZE 4.7K FA 1/10W
R461	401 026 4902	CARBON 330K JA 1/6W
R462	401 025 8208	CARBON 22K JA 1/6W
★ R463	401 061 0006	OXIDE-MT 3.3 JA 1W
R464	401 025 4606	CARBON 18K JA 1/6W
★ R467	401 065 3706	OXIDE-MT 1.2K JA 2W
R468	401 026 4605	CARBON 33K JA 1/6W
★ R481	401 006 7701	CARBON 1 JB 1/2W
★ R482	401 022 0809	CARBON 68 JA 1/4W
★ R483	401 006 7701	CARBON 1 JB 1/2W
R485	401 256 7209	MT-GLAZE 18K JA 1/10W
★ R486	401 069 5607	OXIDE-MT 8.2 JA 2W
R487	401 026 6609	CARBON 390 JA 1/6W
★ R488	401 059 1602	OXIDE-MT 15 JA 1W
★ R489	401 065 9609	OXIDE-MT 18 JA 2W
R491	401 012 5708	CARBON 1K JA 1/4W
R492	401 156 8504	MT-FILM 33K FA 1/6W
R493	401 019 4001	CARBON 390K JA 1/4W
R494	401 018 5801	CARBON 330K JA 1/4W
★ R495	401 066 5204	OXIDE-MT 22 JA 2W
★ R497	401 067 3100	OXIDE-MT 3.9 JA 2W
R499	401 026 6609	CARBON 390 JA 1/6W
R503	401 026 9907	CARBON 4.7K JA 1/6W
R504	401 024 7400	CARBON 10K JA 1/6W
R505	401 006 8401	CARBON 1.5 JA 1/2W
R506	401 027 8305	CARBON 820 JA 1/6W
R507	401 006 8807	CARBON 1.8 JA 1/2W
R508	401 025 4606	CARBON 18K JA 1/6W
R509	401 025 4606	CARBON 18K JA 1/6W
★ R511	401 066 6102	OXIDE-MT 220 JA 2W
R517	401 026 7408	CARBON 39K JA 1/6W
R518	401 025 4606	CARBON 18K JA 1/6W
R531	401 256 7308	MT-GLAZE 6.8K JA 1/10W
R532	401 256 6608	MT-GLAZE 68K JA 1/10W
R533	401 027 3003	CARBON 56K JA 1/6W
★ R601	402 056 6805	WIRE WOUND 1 KA 10W
	402 073 6901	WIRE WOUND 1 KA 10W
	402 088 9508	WIRE WOUND 1.0 KA 10W
★ R602	402 000 0705	SOLID 3.3M KA 1/2W
	402 088 1502	RESISTER 3.3M JA 1/2W
	402 090 2108	RESISTER 3.3M JA 1/2W
R603	401 010 9203	CARBON 560K JA 1/2W
★ R604	401 066 3002	OXIDE-MT 2.2 JA 2W
R606	401 019 9600	CARBON 47 JA 1/4W
R607	401 016 1508	CARBON 22 JA 1/4W
R608	401 162 3807	MT-GLAZE 470K JA 1/10W
R609	401 162 3005	MT-GLAZE 22K JA 1/10W

Schematic Location	Part No.	Description
R611	401 027 0309	CARBON 47K JA 1/6W
★ R612	402 001 8502	FUSIBLE RES 10 J- 1/2W
★ R613	401 180 8402	OXIDE-MT 0.47 JA 2W
R614	401 020 0900	CARBON 470 JB 1/4W
★ R615	401 180 8402	OXIDE-MT 0.47 JA 2W
R616	401 150 5905	MT-GLAZE 10K JA 1/10W
★ R617	402 001 8106	FUSIBLE RES 680 J- 1/4W
R618	401 012 5708	CARBON 1K JA 1/4W
R619	401 162 3005	MT-GLAZE 22K JA 1/10W
R621	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R627	401 024 7400	CARBON 10K JA 1/6W
R628	401 013 5301	CARBON 1.2K JA 1/4W
R629	401 150 6209	MT-GLAZE 1K JA 1/10W
★ R630	401 060 5002	OXIDE-MT 22K JA 1W
R631	401 022 3107	CARBON 6.8K JA 1/4W
R632	401 150 6209	MT-GLAZE 1K JA 1/10W
R634	401 256 6301	MT-GLAZE 47K JA 1/10W
R641	401 024 7400	CARBON 10K JA 1/6W
R642	401 150 5905	MT-GLAZE 10K JA 1/10W
R644	401 024 7707	CARBON 100K JA 1/6W
R645	401 150 5905	MT-GLAZE 10K JA 1/10W
R683	401 026 7002	CARBON 3.9K JA 1/6W
R687	401 162 3005	MT-GLAZE 22K JA 1/10W
R688	401 256 0408	MT-GLAZE 12K JA 1/10W
R691	401 024 7400	CARBON 10K JA 1/6W
R692	401 027 5908	CARBON 68K JA 1/6W
R693	401 027 3201	CARBON 560K JA 1/6W
R694	401 024 7400	CARBON 10K JA 1/6W
R695	401 025 8208	CARBON 22K JA 1/6W
R701	401 027 8107	CARBON 82 JA 1/6W
R702	401 025 1605	CARBON 1.5K JA 1/6W
R703	401 024 7004	CARBON 1K JA 1/6W
R704	401 158 8180	CARBON 100 JB 1/6W
★ R705	401 058 3706	OXIDE-MT 1K JA 1W
★ R706	401 058 5908	OXIDE-MT 100K JA 1W
★ R707	401 058 5908	OXIDE-MT 100K JA 1W
★ R708	401 058 5908	OXIDE-MT 100K JA 1W
R709	401 024 9305	CARBON 1.2K JA 1/6W
R711	401 027 8107	CARBON 82 JA 1/6W
R712	401 025 1605	CARBON 1.5K JA 1/6W
R713	401 024 7004	CARBON 1K JA 1/6W
R714	401 158 8180	CARBON 100 JB 1/6W
★ R715	401 058 3706	OXIDE-MT 1K JA 1W
R719	401 024 9305	CARBON 1.2K JA 1/6W
R721	401 027 8107	CARBON 82 JA 1/6W
R722	401 025 1605	CARBON 1.5K JA 1/6W
R723	401 024 7004	CARBON 1K JA 1/6W
R724	401 158 8180	CARBON 100 JB 1/6W
★ R725	401 058 3706	OXIDE-MT 1K JA 1W
R729	401 024 9305	CARBON 1.2K JA 1/6W
R733	401 013 7305	CARBON 120K JA 1/4W
R734	401 026 1000	CARBON 2.7K JA 1/6W
R803	401 024 6700	CARBON 100 JA 1/6W
R804	401 024 6700	CARBON 100 JA 1/6W
R806	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R807	401 150 5905	MT-GLAZE 10K JA 1/10W
R808	401 150 5905	MT-GLAZE 10K JA 1/10W
R809	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R811	401 025 1902	CARBON 15K JA 1/6W

Schematic Location	Part No.	Description
R812	401 162 3005	MT-GLAZE 22K JA 1/10W
R813	401 150 5905	MT-GLAZE 10K JA 1/10W
R814	401 150 5905	MT-GLAZE 10K JA 1/10W
R816	401 152 3206	MT-GLAZE 330 JA 1/10W
R824	401 255 6500	MT-GLAZE 100 JA 1/10W
R825	401 150 5905	MT-GLAZE 10K JA 1/10W
R829	401 255 6500	MT-GLAZE 100 JA 1/10W
R831	401 150 5806	MT-GLAZE 100K JA 1/10W
R833	401 150 5905	MT-GLAZE 10K JA 1/10W
R835	401 026 1000	CARBON 2.7K JA 1/6W
R846	401 162 3104	MT-GLAZE 3.3K JA 1/10W
R847	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R848	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R849	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R851	401 024 7004	CARBON 1K JA 1/6W
R852	401 026 7408	CARBON 39K JA 1/6W
R853	401 256 3201	MT-GLAZE 1.5M JA 1/10W
R854	401 256 3805	MT-GLAZE 1.5K JA 1/10W
R856	401 255 6500	MT-GLAZE 100 JA 1/10W
R857	401 255 6500	MT-GLAZE 100 JA 1/10W
R864	401 256 0200	MT-GLAZE 120K JA 1/10W
R867	401 024 7400	CARBON 10K JA 1/6W
R872	401 256 3607	MT-GLAZE 15K JA 1/10W
R873	401 162 3005	MT-GLAZE 22K JA 1/10W
R874	401 255 6500	MT-GLAZE 100 JA 1/10W
R877	401 255 6500	MT-GLAZE 100 JA 1/10W
R879	401 024 6700	CARBON 100 JA 1/6W
R881	401 255 6500	MT-GLAZE 100 JA 1/10W
R882	401 255 6500	MT-GLAZE 100 JA 1/10W
R883	401 255 6500	MT-GLAZE 100 JA 1/10W
R884	401 255 6500	MT-GLAZE 100 JA 1/10W
R886	401 150 5905	MT-GLAZE 10K JA 1/10W
R1001	401 255 9006	MT-GLAZE 82 JA 1/10W
R1002	401 255 9006	MT-GLAZE 82 JA 1/10W
R1004	401 025 8208	CARBON 22K JA 1/6W
R1006	401 026 9600	CARBON 470 JA 1/6W
R1007	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R1008	401 025 8208	CARBON 22K JA 1/6W
R1009	401 024 6700	CARBON 100 JA 1/6W
R1011	401 256 2709	MT-GLAZE 75 JA 1/10W
R1012	401 256 6004	MT-GLAZE 27K JA 1/10W
R1013	401 024 9701	CARBON 12K JA 1/6W
R1021	401 255 9006	MT-GLAZE 82 JA 1/10W
R1022	401 255 9006	MT-GLAZE 82 JA 1/10W
R1026	401 026 9600	CARBON 470 JA 1/6W
R1027	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R1031	401 256 2709	MT-GLAZE 75 JA 1/10W
R1032	401 256 6004	MT-GLAZE 27K JA 1/10W
R1033	401 024 9701	CARBON 12K JA 1/6W
R1043	401 162 3005	MT-GLAZE 22K JA 1/10W
R1046	401 150 5905	MT-GLAZE 10K JA 1/10W
R1047	401 026 1307	CARBON 27K JA 1/6W
R1048	401 150 5905	MT-GLAZE 10K JA 1/10W
R1049	401 256 6004	MT-GLAZE 27K JA 1/10W
R1051	401 256 2709	MT-GLAZE 75 JA 1/10W
R1052	401 255 6500	MT-GLAZE 100 JA 1/10W
R1053	401 256 2709	MT-GLAZE 75 JA 1/10W
R1054	401 255 6500	MT-GLAZE 100 JA 1/10W
R1055	401 256 2709	MT-GLAZE 75 JA 1/10W

Schematic Location	Part No.	Description
R1056	401 255 6500	MT-GLAZE 100 JA 1/10W
R1057	401 150 5905	MT-GLAZE 10K JA 1/10W
R1058	401 026 1307	CARBON 27K JA 1/6W
R1201	401 150 6100	MT-GLAZE 2.2K JA 1/10W
R1202	401 256 6608	MT-GLAZE 68K JA 1/10W
R1203	401 150 6209	MT-GLAZE 1K JA 1/10W
R1204	401 256 1702	MT-GLAZE 33K JA 1/10W
R1206	401 162 3005	MT-GLAZE 22K JA 1/10W
R1208	401 024 7004	CARBON 1K JA 1/6W
R1209	401 255 6500	MT-GLAZE 100 JA 1/10W
R1210	401 255 6500	MT-GLAZE 100 JA 1/10W
R1211	401 150 6100	MT-GLAZE 2.2K JA 1/10W
R1212	401 256 6608	MT-GLAZE 68K JA 1/10W
R1213	401 150 6209	MT-GLAZE 1K JA 1/10W
R1214	401 256 1702	MT-GLAZE 33K JA 1/10W
R1218	401 024 7004	CARBON 1K JA 1/6W
R1700	401 026 9907	CARBON 4.7K JA 1/6W
R1702	401 162 3005	MT-GLAZE 22K JA 1/10W
R1703	401 256 6608	MT-GLAZE 68K JA 1/10W
R1705	401 027 2303	CARBON 560 JA 1/6W
R1706	401 025 4200	CARBON 1.8K JA 1/6W
R1707	401 026 4308	CARBON 3.3K JA 1/6W
R1711	401 150 6209	MT-GLAZE 1K JA 1/10W
R1712	401 162 2800	MT-GLAZE 1.8K JA 1/10W
R1714	401 256 0309	MT-GLAZE 820 JA 1/10W
R1716	401 025 7409	CARBON 220 JA 1/6W
R1717	401 162 3609	MT-GLAZE 470 JA 1/10W
R1718	401 162 2909	MT-GLAZE 220 JA 1/10W
R1719	401 162 4002	MT-GLAZE 560 JA 1/10W
R1720	401 025 4200	CARBON 1.8K JA 1/6W
R1722	401 027 5908	CARBON 68K JA 1/6W
R1723	401 026 7408	CARBON 39K JA 1/6W
R1724	401 026 7408	CARBON 39K JA 1/6W
R1725	401 024 6700	CARBON 100 JA 1/6W
R1727	401 012 3506	CARBON 10 JB 1/4W
R1728	401 019 1109	CARBON 390 JB 1/4W
R1730	401 024 7004	CARBON 1K JA 1/6W
R1732	401 024 9305	CARBON 1.2K JA 1/6W
R1733	401 024 7707	CARBON 100K JA 1/6W
R1734	401 024 7707	CARBON 100K JA 1/6W
R1735	401 007 4709	CARBON 1.2K JA 1/2W
R1736	401 024 9701	CARBON 12K JA 1/6W
R1737	401 009 8705	CARBON 39 JB 1/2W
R1738	401 009 8705	CARBON 39 JB 1/2W
R1740	401 008 4500	CARBON 2.7 JB 1/2W
R1741	401 008 3800	CARBON 2.2 JB 1/2W
★ R1742	401 064 7507	OXIDE-MT 100 JA 2W
R1744	401 024 9305	CARBON 1.2K JA 1/6W
R1746	401 012 4503	CARBON 100 JA 1/4W
R1747	401 025 1605	CARBON 1.5K JA 1/6W
R1748	401 024 6700	CARBON 100 JA 1/6W
R1753	401 024 6700	CARBON 100 JA 1/6W
R1901	401 150 5905	MT-GLAZE 10K JA 1/10W
R1902	401 150 6209	MT-GLAZE 1K JA 1/10W
R1903	401 162 2800	MT-GLAZE 1.8K JA 1/10W
R1904	401 150 6100	MT-GLAZE 2.2K JA 1/10W
R1905	401 256 7605	MT-GLAZE 3.9K JA 1/10W
R1906	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R1907	401 256 0408	MT-GLAZE 12K JA 1/10W

Schematic Location	Part No.	Description
R1909	401 024 7004	CARBON 1K JA 1/6W
R1910	401 024 7004	CARBON 1K JA 1/6W
R3401	401 025 7409	CARBON 220 JA 1/6W
R3402	401 025 7409	CARBON 220 JA 1/6W
R3406	401 150 5806	MT-GLAZE 100K JA 1/10W
R3407	401 255 6005	MT-GLAZE 1M JA 1/10W
R3411	401 265 4008	MT-GLAZE 62K JA 1/10W
R3421	401 162 3104	MT-GLAZE 3.3K JA 1/10W
R3422	401 255 6401	MT-GLAZE 3K JA 1/10W
R3426	401 256 7605	MT-GLAZE 3.9K JA 1/10W
R3432	401 150 5905	MT-GLAZE 10K JA 1/10W
R3433	401 150 5905	MT-GLAZE 10K JA 1/10W
R3434	401 162 4002	MT-GLAZE 560 JA 1/10W
R3435	401 150 5806	MT-GLAZE 100K JA 1/10W
R3436	401 162 4002	MT-GLAZE 560 JA 1/10W
R3437	401 150 5806	MT-GLAZE 100K JA 1/10W
R3441	401 256 1405	MT-GLAZE 330K JA 1/10W
R3442	401 255 6500	MT-GLAZE 100 JA 1/10W
R3443	401 256 1405	MT-GLAZE 330K JA 1/10W
R3444	401 255 6500	MT-GLAZE 100 JA 1/10W
R3445	401 256 1405	MT-GLAZE 330K JA 1/10W
R3447	401 256 1405	MT-GLAZE 330K JA 1/10W
R3451	401 256 1405	MT-GLAZE 330K JA 1/10W
R3452	401 255 6500	MT-GLAZE 100 JA 1/10W
R3453	401 256 1405	MT-GLAZE 330K JA 1/10W
R3454	401 255 6500	MT-GLAZE 100 JA 1/10W
R3456	401 255 6500	MT-GLAZE 100 JA 1/10W
R3458	401 255 6500	MT-GLAZE 100 JA 1/10W
R3461	401 150 6209	MT-GLAZE 1K JA 1/10W
R3462	401 256 0309	MT-GLAZE 820 JA 1/10W

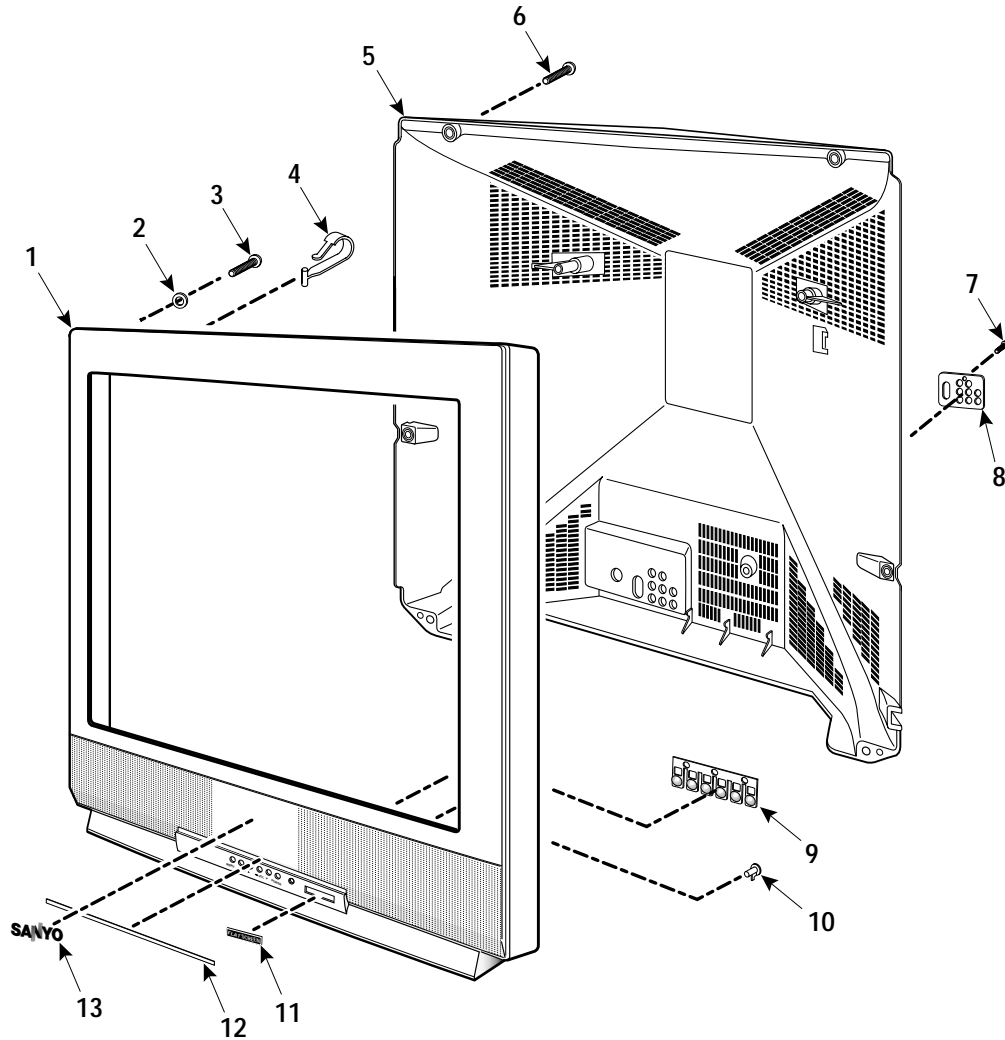
#### SWITCHES

SW1901	645 006 9673	SWITCH, PUSH (POWER)
	645 027 7382	SWITCH, PUSH (POWER)
	645 052 2284	SWITCH, PUSH (POWER)
SW1902	645 006 9673	SWITCH, PUSH (VOL +)
	645 027 7382	SWITCH, PUSH (VOL +)
	645 052 2284	SWITCH, PUSH (VOL +)
SW1903	645 006 9673	SWITCH, PUSH (VOL -)
	645 027 7382	SWITCH, PUSH (VOL -)
	645 052 2284	SWITCH, PUSH (VOL -)
SW1904	645 006 9673	SWITCH, PUSH (CH ▲)
	645 027 7382	SWITCH, PUSH (CH ▲)
	645 052 2284	SWITCH, PUSH (CH ▲)
SW1905	645 006 9673	SWITCH, PUSH (CH ▼)
	645 027 7382	SWITCH, PUSH (CH ▼)
	645 052 2284	SWITCH, PUSH (CH ▼)
SW1906	645 006 9673	SWITCH, PUSH (MENU)
	645 027 7382	SWITCH, PUSH (MENU)
	645 052 2284	SWITCH, PUSH (MENU)

Schematic Location	Part No.	Description
<b>TRANSFORMERS</b>		
T151	645 049 3775	TRANS, OSC 45.75MHZ
T401	610 000 1138	DRIVE TRANS
	610 223 1663	DRIVE TRANS
★ T402A	645 058 8006	TRANS, FLYBACK
★ T601	645 056 7353	TRANS, POWER, PULSE
<b>CRYSTALS/FILTERS</b>		
X141	421 008 9008	SAW F TSF5235P
X161	610 015 3059	TRAP, CERAMIC 4.5MHZ
	645 041 1618	TRAP CERAMIC 4.5MHZ
X251	610 012 0655	CRYSTAL OSCILLATOR
	610 204 4195	CRYSTAL OSCILLATOR
	610 245 9746	CRYSTAL OSCILLATOR
X801	645 026 8434	OSC, CRYSTAL 8.000MHZ
<b>MISCELLANEOUS</b>		
A100	610 303 0630	ASSY, PWB, MAIN G7YFM
★ A101	645 052 6077	TUNER, U/V
	645 052 6084	TUNER, U/V
A700	610 303 0708	ASSY, PWB, CRT G7RSM
A1000	610 304 4057	ASSY, PWB, AV G7ZCM-C
A1901	645 047 6228	UNIT, REMOCON RECEIVER
★ F601	423 007 1601	FUSE 125V 4A
	423 007 1809	FUSE 125V 4A
	423 018 8101	FUSE 125V 4A
	423 029 8008	FUSE 125V 4A
F601A	645 000 5077	HOLDER, FUSE
	645 016 0479	HOLDER, FUSE
F601B	645 000 5077	HOLDER, FUSE
	645 016 0479	HOLDER, FUSE
★ K701	645 026 2005	SOCKET, CRT 8P
K1001	645 052 6886	TERMINAL, BOARD
K1002	645 052 6879	JACK, RCA-4(6-2)
★ PS601	408 046 5209	TH PTDA1BF3R0Q100
★ Q901	414 012 2103	CRT A68QCU759X77
★ RL601	645 011 2713	RELAY
	645 015 8629	RELAY
	645 052 5933	RELAY
SP901	645 005 6536	SPEAKER, 8
SP902	645 005 6536	SPEAKER, 8
★ W601	645 023 1698	CORD, POWER
	645 056 9548	CORD, POWER-2.05MK
★ W901	610 293 4366	ASSY, WIRE GND CONNECTOR G



# CABINET PARTS LIST



## CABINET PARTS LIST

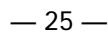
KEY NO.	PARTS NO.	DESCRIPTION
1	610 304 7577	CABINET FRONT ASSY
2	412 051 7806	CRT MTG WASHER 2.MM (4 USED)
3	412 053 3905	CRT MTG SCREW 6X35 (4 USED)
4	610 102 7151	DC HOLDER (4 USED)
5	610 303 7035	CABINET BACK
6	412 036 1805	SCREW 4X14 (7 USED)
7	411 026 2303	SCREW 3X10 (3 USED)
8	610 299 3950	DEC AV SHEET
9	610 304 7553	BUTTON UNIT
10	610 285 1199	CAP RC
11	610 299 5527	DEC SHEET
12	610 305 4018	DEC SHEET
13	610 293 2560	SANYO BADGE


## ACCESSORY PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
	610 304 6839	OWNER'S MANUAL
	645 058 8136	RC TRANSMITTER
	610 298 2398	RC BATTERY COVER



## MAIN BOARD FOIL SIDE





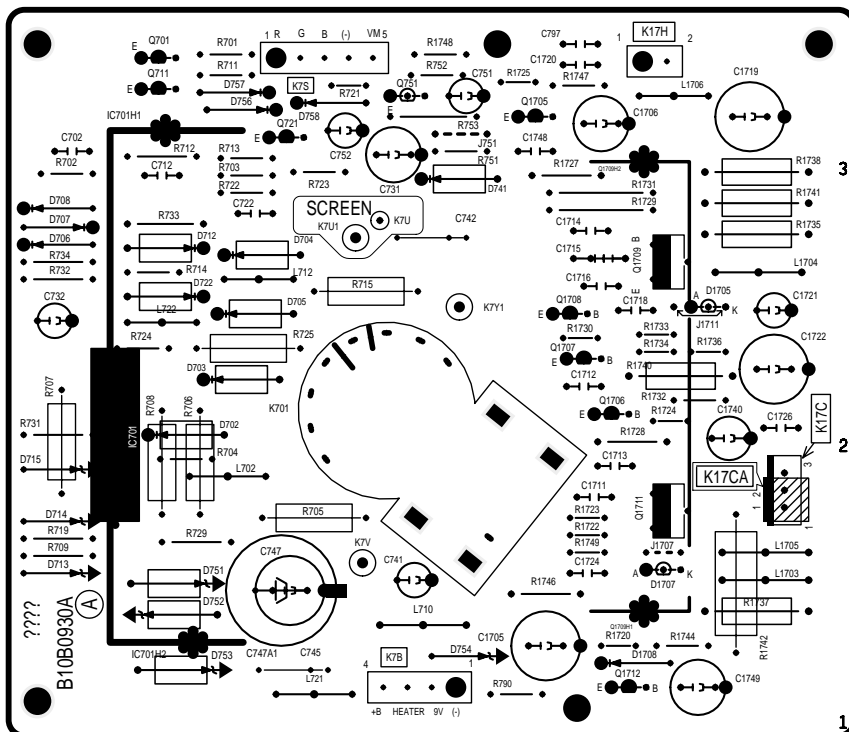
**ATTENTION : POUR MAINTENIR LA PROTECTION CONTRE LES RISQUES D' INCENDIE UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE 4A, 125V.**

## AV BOARD COMPONENTS

Part	Loc.	Part	Loc.	Part	Loc.
D429	H4	Q402	G3	Q1700	D5
D508	G4	Q486	B4	Q1701	E4
D612	B2	Q490	F6	Q1702	E4
D643	A4	Q601	D2	Q1704	E4
IC001	C6	Q611	C1	R513	E2
IC101	E6	Q612	D2	TE7	H3
IC501P	E3	Q627	B3	TP7	H4
IC601	B3	Q635	B3	TJ1	B3
IC681	A3	Q641	A4	TJ4	G4
IC801	B5	Q681	A3	TJ6	F6
IC802	A4	Q688	A3	TP16	E6
IC1201	B6	Q693	B3	TP50	H3
IC3401	A6	Q695	B3	TP51	H3
Q001	C6	Q831	B4	TP317	B6
Q135	F6	Q1201	B6	TP318	B6
Q202	E5	Q1202	H6	T151	E6
Q271	G5	Q1211	B6		
Q401	F3	Q1212	H6		

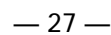
Part
IC301
IC1001
IC1002
IC1003
Q301
Q302
Q303
Q315
Q321
Q1001

## PIC TUBE SOCKET BOARD COMPONENTS

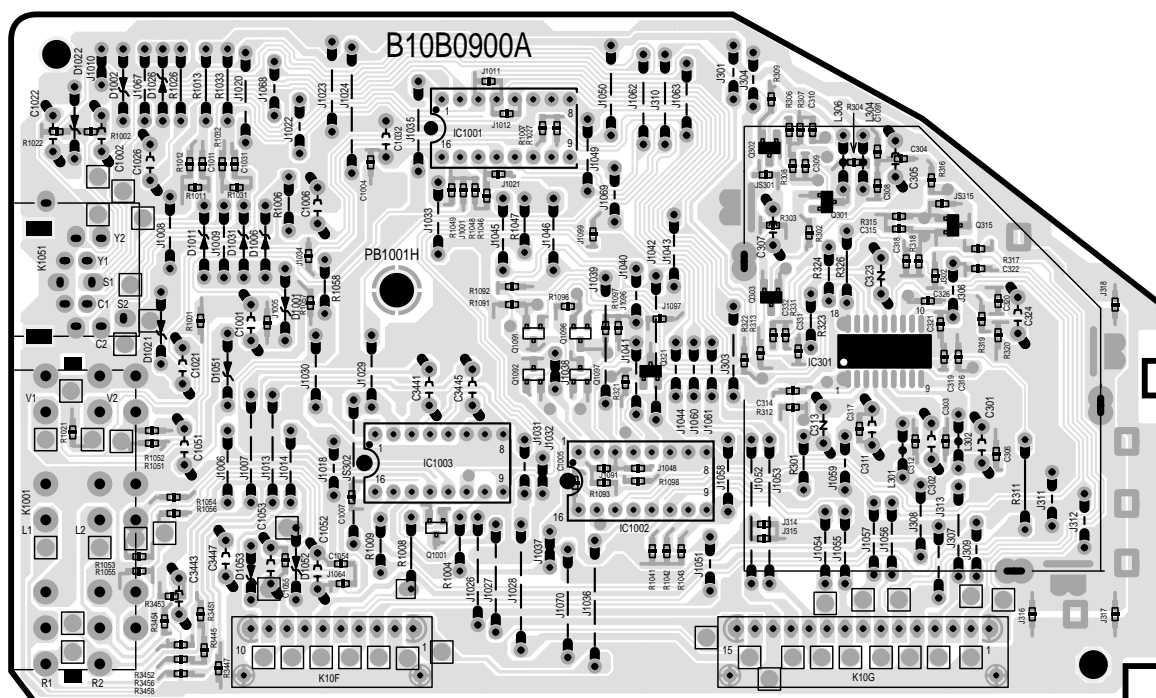
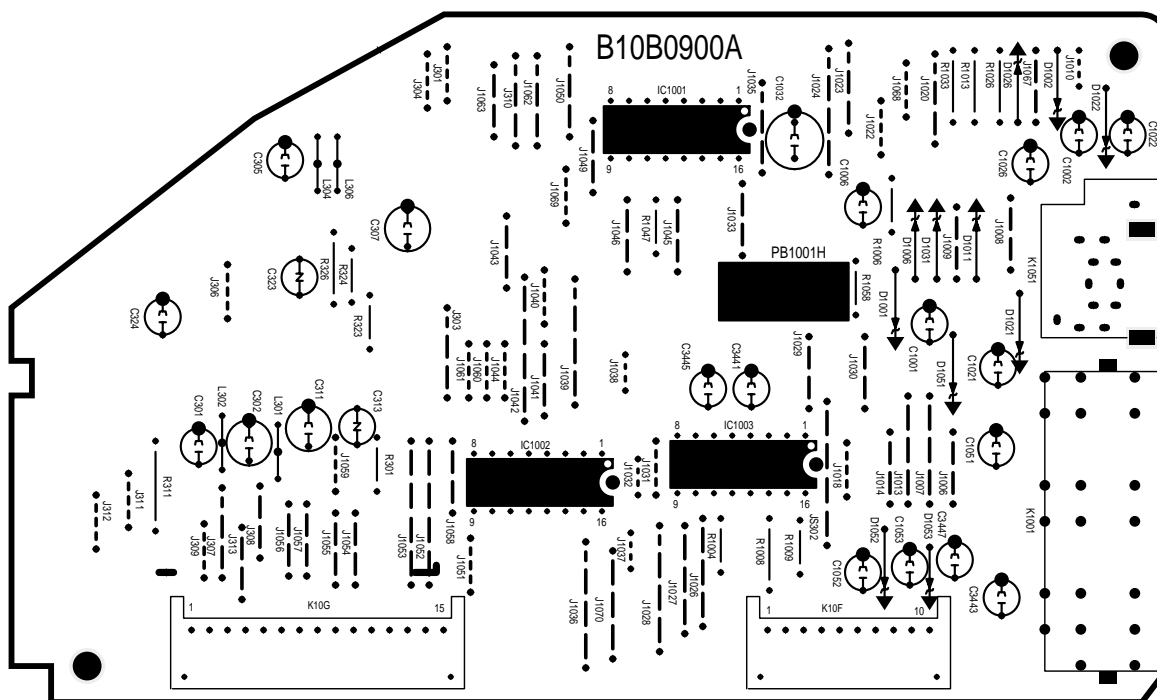


Part
IC701
Q701
Q711
Q721
Q1705
Q1706
Q1707
Q1708
Q1709
Q1711
Q1712

## MAIN BOARD PARTS SIDE



## AV BOARD FOIL SIDE



**SANYO Fisher Service Corporation**  
**21605 Plummer Street**  
**Chatsworth, CA 91311 (U.S.A.)**


**300 Applewood Crescent,**  
**Concord, Ontario L4K 5C7 (CANADA)**

April / 2003 / 2000 SMC

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## SCHEMATIC DIAGRAMS

## NOTES ON SCHEMATIC DIAGRAMS

1. All resistance values in ohms K=1,000 M=1,000,000.
2. Unless otherwise noted on schematic, all capacitor values less than 1 are expressed in  $\mu\text{F}$  (Micro Farad), and the values more than 1 are in pF.
3. Unless noted on schematic, voltage reading taken with VOM from point indicated to chassis ground. Voltage reading taken using color-bar signal VHF channel 5, all controls at normal. Line voltage at 120 volts. Some voltages may vary with signal strength.
4. Waveforms were taken with color-bar signal and controls set for normal picture. Waveforms marked with an \* may vary with signal strength.
5. The Symbol  indicates a fusible resistor, which protects the circuit from possible short circuits.

**SERVICE NOTES:**

1. When replacing parts on circuit boards, clamp the lead wires to terminals before soldering.
2. When replacing high wattage resistors on circuit board, keep the resistor body 10 mm (3/8) from circuit board.
3. Keep wires away from high voltage and high temperature components.

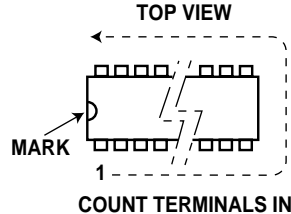
## PRODUCT SAFETY NOTICE

THE COMPONENTS DESIGNATED BY A STAR (★) ON THIS SCHEMATIC DIAGRAM DESIGNATE COMPONENTS WHOSE VALUES ARE OF SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. SHOULD ANY COMPONENT DESIGNATED BY A STAR NEED TO BE REPLACED, USE ONLY THE PART DESIGNATED IN THE PARTS LIST. DO NOT DEVIATE FROM THE RESISTANCE, WATTAGE AND VOLTAGE RATINGS SHOWN.

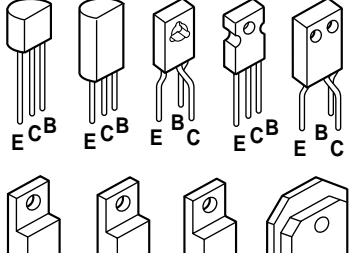
**X-RADIATION WARNING NOTE**

THIS TV CONTAINS CRITICAL PARTS TO PROTECT AGAINST X-RADIATION. NOMINAL 2ND ANODE VOLTAGE IS 30.4KV AT ZERO BEAM CURRENT AT 120 VOLTS AC LINE, AND MUST NOT EXCEED 32.6KV UNDER ANY OPERATING CONDITION. SEE HIGH VOLTAGE CHECK ON PAGE 9.

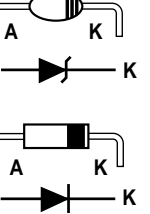
## INTEGRATED CIRCUITS



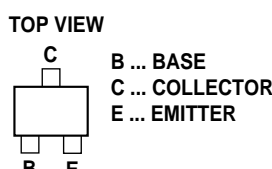
## TRANSISTORS



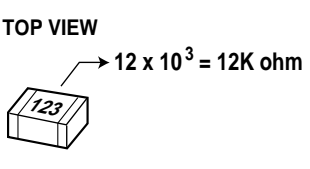
## DIODES



## CHIP TRANSISTORS

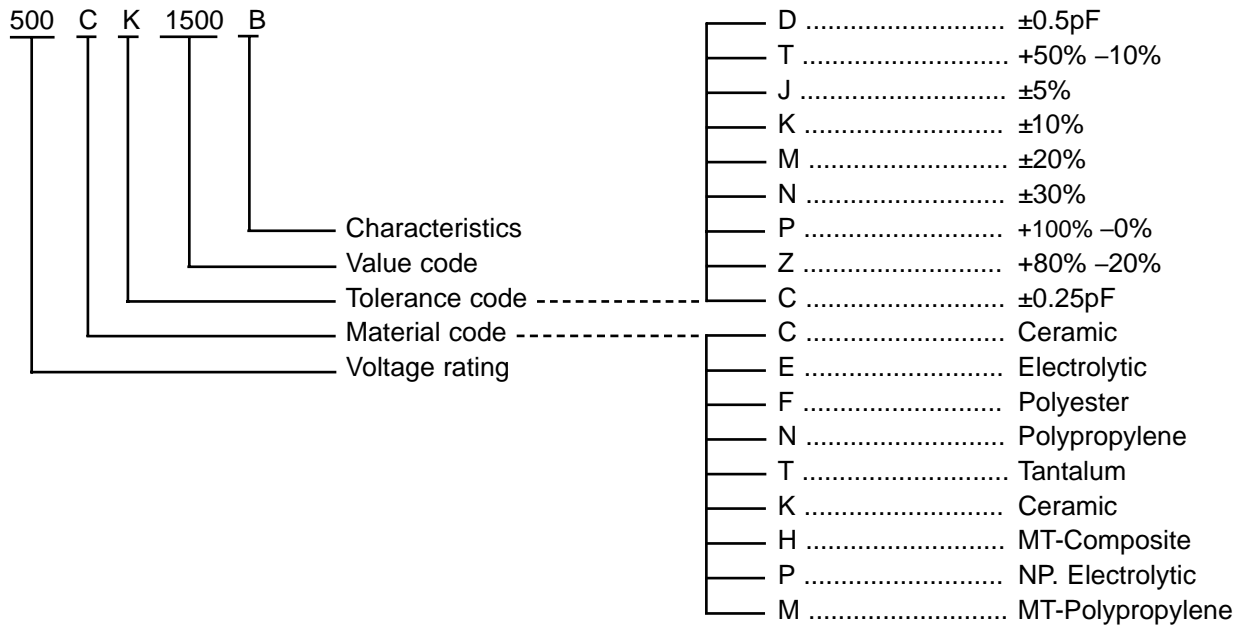


## CHIP RESISTORS

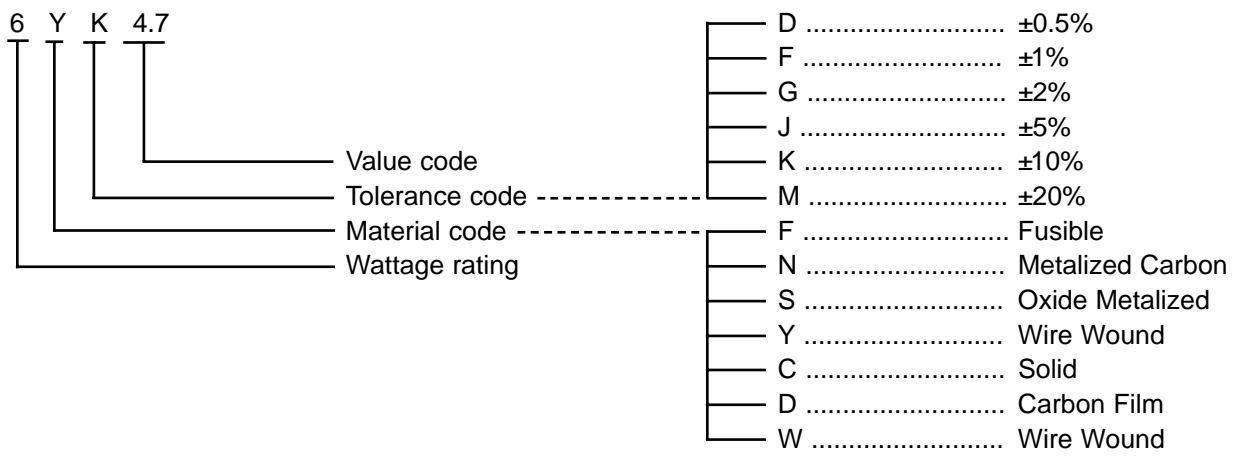


## CAPACITOR AND RESISTOR CODE CHART

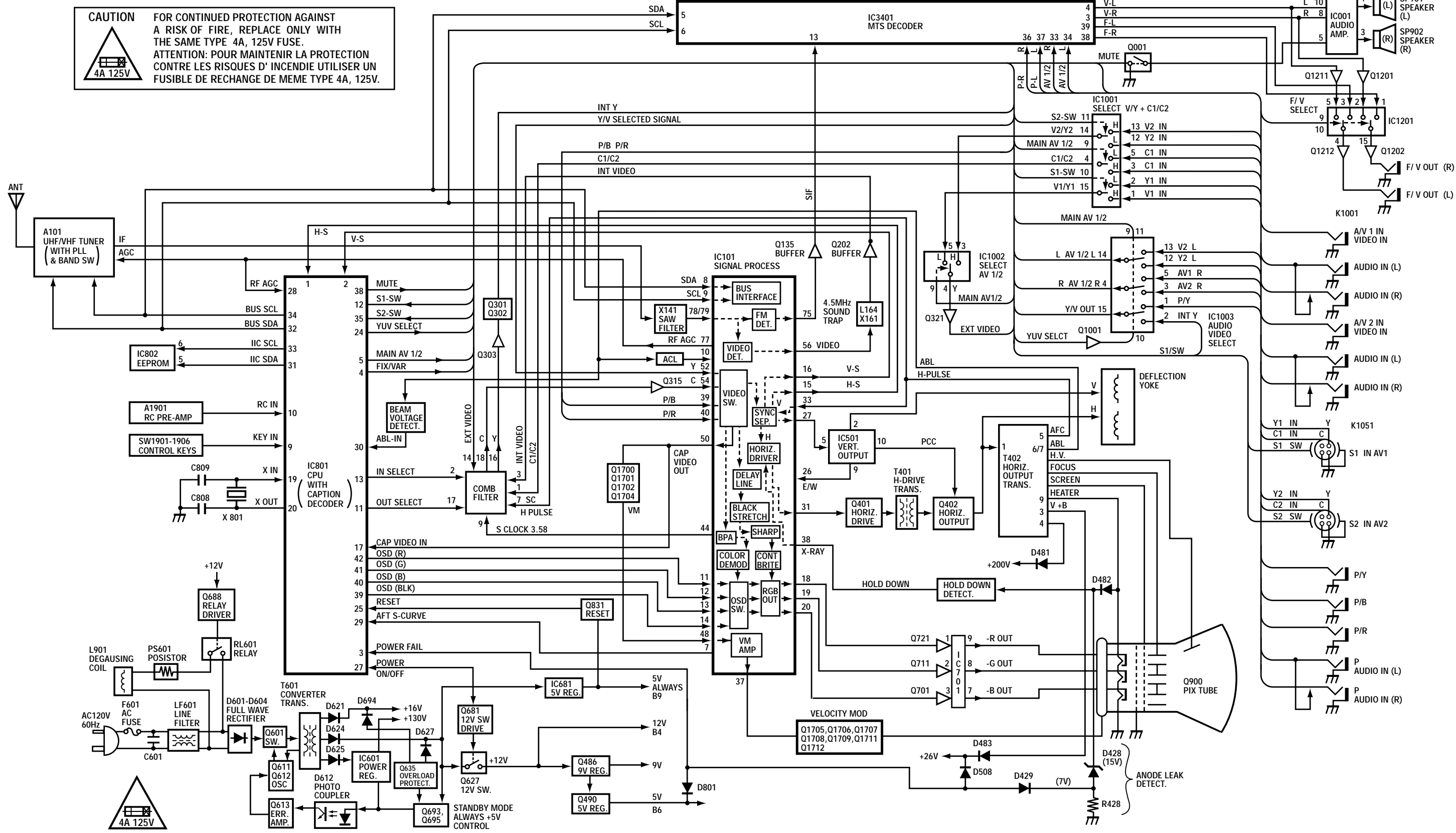
### CAPACITOR (Example)



### RESISTOR (Example)



## BLOCK DIAGRAM



## VOLTAGE CHARTS

NOTE: Voltages were measured using color-bar signal and the controls set for normal picture.

Device/ Pin #	Volts/Mode	
D612-1	POWER ON 28.7	POWER OFF: 9.2
D612-2	POWER ON 27.9	POWER OFF: 9.1
D612-3	POWER ON 1.3	POWER OFF: 0.6
D612-4	POWER ON 10.2	POWER OFF: 1.9
IC001-1	7.7	
IC001-2	GND	
IC001-3	GND	
IC001-4	15.6	
IC001-5	7.7	
IC001-6	10.7	
IC001-7	2.1	
IC001-8	1.4	
IC001-9	GND	
IC001-10	1.4	
IC101-1	GND	
IC101-2	GND	
IC101-3	GND	
IC101-4	GND	
IC101-5	5.1	
IC101-6	3.7	
IC101-7	2.4	
IC101-8	3.7	
IC101-9	3.9	
IC101-10	3.7	
IC101-11	0	
IC101-12	0	
IC101-13	0	
IC101-14	0	
IC101-15	3.9	
IC101-16	3.9	
IC101-17	8.3	
IC101-18	2.5	
IC101-19	2.5	
IC101-20	2.5	
IC101-21	0	
IC101-22	0	
IC101-23	0	
IC101-24	0	
IC101-25	4.6	
IC101-26	2.4	
IC101-27	2.4	
IC101-28	2.5	
IC101-29	5.2	
IC101-30	2.8	
IC101-31	0.5	
IC101-32	GND	
IC101-33	1.1	
IC101-34	1.7	
IC101-35	GND	
IC101-36	GND	
IC101-37	2.0	
IC101-38	0	
IC101-39	0.1	
IC101-40	0.1	
IC101-41	GND	

Device/ Pin #	Volts/Mode
IC101-42	GND
IC101-43	GND
IC101-44	2.9
IC101-45	3.6
IC101-46	2.9
IC101-47	1.9
IC101-48	2.6
IC101-49	GND
IC101-50	1.9
IC101-51	GND
IC101-52	2.7
IC101-53	5.1
IC101-54	2.6
IC101-55	2.7
IC101-56	2.4
IC101-57	GND
IC101-58	2.6
IC101-59	4.5
IC101-60	4.5
IC101-61	GND
IC101-62	GND
IC101-63	GND
IC101-64	GND
IC101-65	2.4
IC101-66	0
IC101-67	1.9
IC101-68	0
IC101-69	3.2
IC101-70	GND
IC101-71	2.0
IC101-72	GND
IC101-73	3.8
IC101-74	9.0
IC101-75	3.9
IC101-76	2.5
IC101-77	2.0
IC101-78	2.3
IC101-79	3.0
IC101-80	GND
IC301-1	2.6
IC301-2	4.8
IC301-3	2.8
IC301-4	5.1
IC301-5	0
IC301-6	5.1
IC301-7	4.1
IC301-8	2.3
IC301-9	GND
IC301-10	GND
IC301-11	0.9
IC301-12	9.1
IC301-13	3.5
IC301-14	2.9
IC301-15	GND
IC301-16	2.6
IC301-17	0
IC301-18	2.3

Device/Pin #	Volts/Mode	
IC501P-1	GND	
IC501P-2	13.7	
IC501P-3	27.1	
IC501P-4	2.9	
IC501P-5	2.9	
IC501P-6	27.2	
IC501P-7	2.9	
IC501P-8	2.9	
IC501P-9	2.9	
IC501P-10	10.3	
IC601-1	POWER ON: 129.2	POWER OFF: 92.5
IC601-2	POWER ON: 31.1	POWER OFF: 9.8
IC601-3	GND	
IC681-1 (IN)	POWER ON: 11.6	POWER OFF: 7.3
IC681-2	GND	
IC681-3 (OUT)	POWER ON: 5.0	POWER OFF: 5.0
IC701-1	1.9	
IC701-2	1.8	
IC701-3	1.9	
IC701-4	GND	
IC701-5	4.3	
IC701-6	210	
IC701-7	185	
IC701-8	164	
IC701-9	149	
IC801-1	4.0	
IC801-2	3.9	
IC801-3	4.0	
IC801-4	0.4	
IC801-5	0	
IC801-6	0	
IC801-7	0	
IC801-8	0	
IC801-9	0	
IC801-10	4.9	
IC801-11	0	
IC801-12	4.8	
IC801-13	4.9	
IC801-14	4.9	
IC801-15	1.9	
IC801-16	0.2	
IC801-17	2.1	
IC801-18	GND	
IC801-19	2.2	
IC801-20	2.0	
IC801-21	GND	
IC801-22	4.9	
IC801-23	0.2	
IC801-24	4.9	
IC801-25	4.8	
IC801-26	4.9	
IC801-27	POWER ON: 4.9	POWER OFF: 0
IC801-28	2.3	
IC801-29	2.6	

Device/Pin #	Volts/Mode
IC801-30	0
IC801-31	4.9
IC801-32	3.6
IC801-33	4.9
IC801-34	3.7
IC801-35	4.8
IC801-36	4.9
IC801-37	4.9
IC801-38	0
IC801-39	0
IC801-40	0
IC801-41	0
IC801-42	0
IC802-1	GND
IC802-2	GND
IC802-3	GND
IC802-4	GND
IC802-5	4.9
IC802-6	4.9
IC802-7	GND
IC802-8	4.9
IC1001-1	3.9
IC1001-2	0.8
IC1001-3	0.2
IC1001-4	6.5
IC1001-5	6.5
IC1001-6	GND
IC1001-7	GND
IC1001-8	GND
IC1001-9	0
IC1001-10	7.9
IC1001-11	0
IC1001-12	2.5
IC1001-13	2.5
IC1001-14	2.5
IC1001-15	3.9
IC1001-16	9.0
IC1002-1	2.5
IC1002-2	2.5
IC1002-3	2.4
IC1002-4	3.9
IC1002-5	3.9
IC1002-6	GND
IC1002-7	GND
IC1002-8	GND
IC1002-9	0
IC1002-10	0
IC1002-11	0
IC1002-12	2.4
IC1002-13	5.1
IC1002-14	2.4
IC1002-15	5.1
IC1002-16	9.1
IC1003-1	1.6
IC1003-2	1.9
IC1003-3	0.4
IC1003-4	4.1
IC1003-5	4.1
IC1003-6	GND

Device/ Pin #	Volts/Mode
IC1003-7	GND
IC1003-8	GND
IC1003-9	0
IC1003-10	0
IC1003-11	4.1
IC1003-12	4.1
IC1003-13	0.4
IC1003-14	4.1
IC1003-15	2.0
IC1003-16	9.1
IC1201-1	4.1
IC1201-2	4.6
IC1201-3	4.1
IC1201-4	4.1
IC1201-5	4.4
IC1201-6	0
IC1201-7	0
IC1201-8	0
IC1201-9	9.4
IC1201-10	9.4
IC1201-11	9.4
IC1201-12	0
IC1201-13	0
IC1201-14	0
IC1201-15	4.1
IC1201-16	9.4
IC3401-1	4.1
IC3401-2	4.1
IC3401-3	4.1
IC3401-4	4.1
IC3401-5	3.6
IC3401-6	3.7
IC3401-7	GND
IC3401-8	4.1
IC3401-9	4.1
IC3401-10	4.1
IC3401-11	4.1
IC3401-12	4.9
IC3401-13	4.1
IC3401-14	1.3
IC3401-15	1.3
IC3401-16	0
IC3401-17	GND
IC3401-18	3.2
IC3401-19	9.1
IC3401-20	0
IC3401-21	4.1
IC3401-22	4.1
IC3401-23	3.7
IC3401-24	3.9
IC3401-25	4.1
IC3401-26	4.1
IC3401-27	4.1
IC3401-28	1.9
IC3401-29	4.1
IC3401-30	4.1
IC3401-31	2.0
IC3401-32	4.1
IC3401-33	4.1

Device/Pin #	Volts/Mode	
IC3401-34	4.1	
IC3401-35	0	
IC3401-36	4.1	
IC3401-37	4.1	
IC3401-38	4.1	
IC3401-39	4.1	
IC3401-40	4.1	
IC3401-41	4.1	
IC3401-42	GND	
IC3401-43	4.1	
IC3401-44	4.1	
IC3401-45	4.2	
IC3401-46	GND	
IC3401-47	4.1	
IC3401-48	4.1	
Q001-B	POWER ON 76	POWER OFF 0
	POWER ON 0	POWER OFF 8.6
Q001-E	GND	
Q135-B	3.9	
Q135-C	9.0	
Q135-E	3.3	
Q202-B	1.6	
Q201-C	0	
Q202-E	2.4	
Q271-B	9.4	
Q271-C	0	
Q271-E	9.3	
Q301-B	5.1	
Q301-C	9.3	
Q301-E	4.4	
Q302-B	4.4	
Q301-C	0	
Q302-E	5.1	
Q303-B	2.6	
Q303-C	9.0	
Q303-E	2.0	
Q315-B	2.3	
Q315-C	9.0	
Q315-E	1.7	
Q321-B	1.0	
Q321-C	GND	
Q321-E	4.6	
Q401-B	0.3	
Q401-C	47.5	
Q401-E	GND	
Q402-B	-0.1	
Q402-C	128.2	
Q402-E	GND	
Q486-B	9.8	
Q486-C	10.0	
Q486-E	9.1	
Q490-B	5.9	
Q490-C	6.5	
Q490-E	5.2	

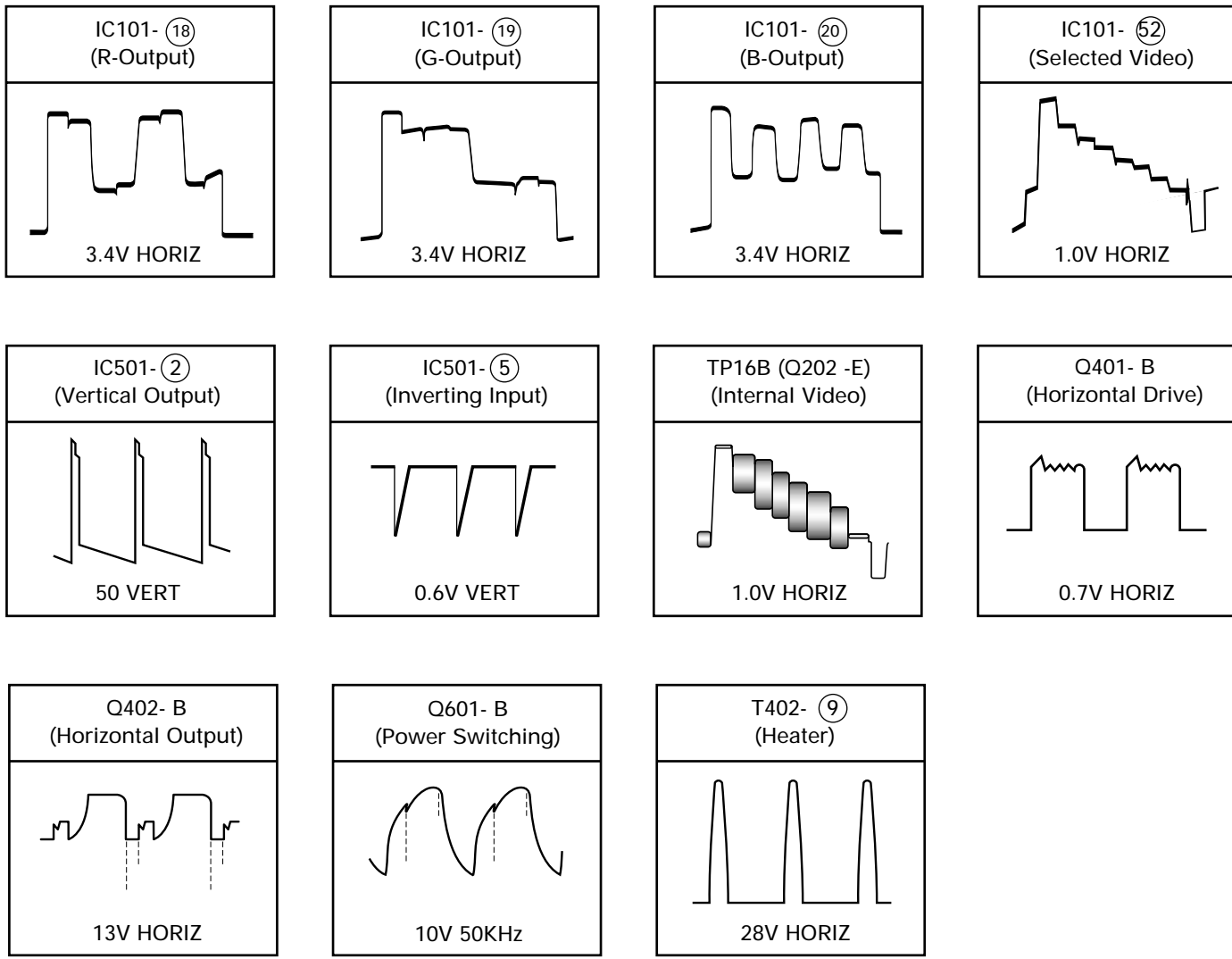
Device/ Pin #	Volts/Mode	
Q601-G	POWER ON: 2.6	POWER OFF: 0.5
Q601-D	POWER ON: 155.8	POWER OFF: 166.6
Q601-S	0.1	0
Q611-B	POWER ON: 2.9	POWER OFF: 0.9
Q611-C	POWER ON: 10.0	POWER OFF: 1.9
Q611-E	2.8	0.4
Q612-B	POWER ON: 2.9	POWER OFF: .9
Q612-C	GND	GND
Q612-E	POWER ON: 2.9	POWER OFF: 0.4
Q613-B	POWER ON: 0.5	POWER OFF: 0.2
Q613-C	POWER ON: 3.9	POWER OFF: 0.9
Q613-E	GND	GND
Q627-B	POWER ON: 11.9	POWER OFF: 7.6
Q627-C	POWER ON: 12.4	POWER OFF: 0
Q627-E	POWER ON: 12.6	POWER OFF: 7.7
Q635-B	POWER ON: 3.8	POWER OFF: 7.6
Q635-C	POWER ON: 28.1	POWER OFF: 9.8
Q635-E	POWER ON: 3.8	POWER OFF: 7.6
Q641-B	POWER ON: 0.6	POWER OFF: 0.6
Q641-C	POWER ON: 12	POWER OFF: 7.7
Q641-E	GND	
Q681-B	POWER ON: 0.7	POWER OFF: 0
Q681-C	POWER ON: 0	POWER OFF: 7.3
Q681-E	GND	
Q688-B	POWER ON: 12.4	POWER OFF: 0.5
Q688-C	POWER ON: 0	POWER OFF: 0
Q688-E	POWER ON: 12.5	POWER OFF: 0.1
Q693-B	POWER ON: 0.5	POWER OFF: 6.2
Q693-C	POWER ON: 27.5	POWER OFF: 8.3
Q693-E	POWER ON: 0.4	POWER OFF: 5.7

Device/ Pin #	Volts/Mode	
Q695-B	POWER ON: 27.6	POWER OFF: 8.3
Q695-C	GND	
Q695-E	POWER ON: 27.7	POWER OFF: 8.5
Q701-B	1.3	
Q701-C	GND	
Q701-E	1.9	
Q711-B	1.2	
Q711-C	GND	
Q711-E	1.9	
Q721-B	1.2	
Q721-C	GND	
Q721-E	1.9	
Q831-B	4.3	
Q831-C	4.9	
Q831-E	4.9	
Q1001-B	0.7	
Q1001-C	0	
Q1001-E	0	
Q1201-B	2.9	
Q1201-C	4.6	
Q1201-E	2.2	
Q1202-B	4.0	
Q1202-C	9.4	
Q1202-E	3.4	
Q1211-B	2.9	
Q1211-C	4.4	
Q1211-E	2.3	
Q1212-B	4.1	
Q1212-C	9.4	
Q1212-E	3.4	
Q1700-B	3.1	
Q1700-C	GND	
Q1700-E	3.7	
Q1701-B	7.9	
Q1701-C	2.5	
Q1701-E	8.6	
Q1702-B	2.5	
Q1702-C	8.1	
Q1702-E	2.2	
Q1704-B	1.4	
Q1704-C	7.1	
Q1704-E	0.8	
Q1705-B	6.9	
Q1705-C	8.6	
Q1705-E	6.3	
Q1706-B	1.3	
Q1706-C	5.6	
Q1706-E	0.6	
Q1707-B	5.6	
Q1707-C	8.6	
Q1707-E	5.7	
Q1708-B	5.6	
Q1708-C	GND	
Q1708-E	5.7	

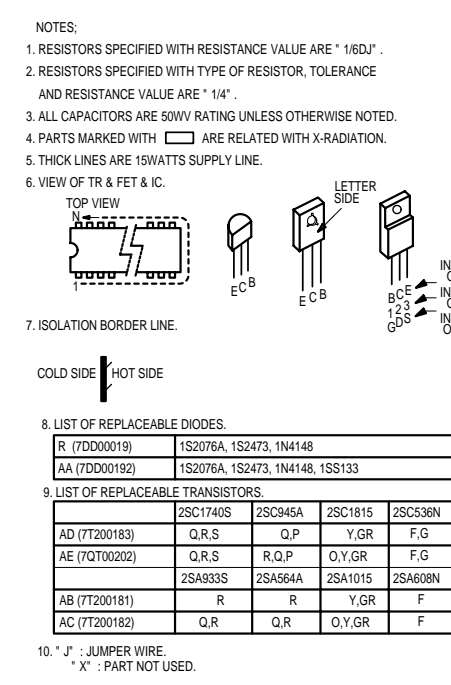
Device/Pin #	Volts/Mode
Q1709-B	133.9
Q1709-C	63.4
Q1709-E	134.4
Q1711-B	0.7
Q1711-C	63.5
Q1711-E	0.2
Q1712-B	0.2
Q1712-C	2.9
Q1712-E	GND

## WAVEFORMS

NOTE: Waveforms were taken with color-bar signal and the controls set for normal picture.







**IMPORTANT:**  
SCHEMATIC PART LOCATION NUMBERS MAY NOT ALWAYS MATCH THE SCHEMATIC SYMBOLS,  
THE SCHEMATIC SYMBOLS AND PART DESCRIPTIONS ARE CORRECT AND SHOULD BE USED.  
THE PART DESCRIPTIONS WILL BE LISTED UNDER THE LOCATION NUMBER IN THE PARTS LIST.